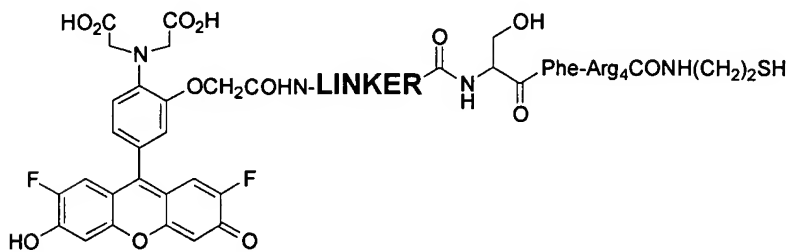
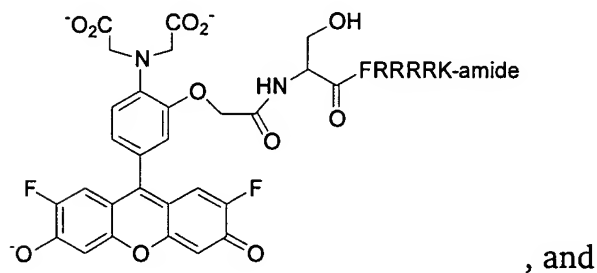
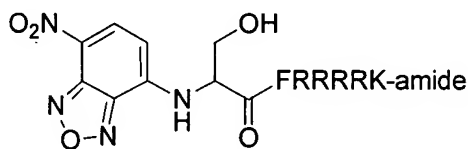


Amendments to the Claims:

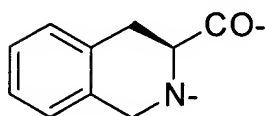
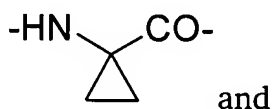
Please amend Claims 56, 57 and 59-62, and add new Claim 148 as set forth below.

1-48. (Canceled)

49. (Previously presented) A substrate for a protein kinase, wherein the substrate is selected from the group consisting of:



wherein F is phenylalanine, K is lysine, and R is arginine; and wherein the LINKER is selected from the group consisting of N-methyl glycine, L-proline, D-proline,



50-55. (Canceled)

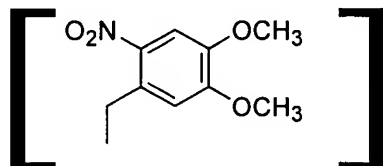
56. (Currently amended) A substrate for a protein kinase, wherein the substrate comprises:

a peptide substrate for the protein kinase, wherein the peptide comprises a serine, a threonine, or a tyrosine on a terminal end of the peptide;

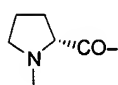
at least one fluorophore, wherein a fluorophore is attached to the serine, the threonine, or the tyrosine on the terminal end of the peptide; and

~~a photolabile side chain attached to the serine, the threonine, or the tyrosine on the terminal end of the peptide, wherein the photolabile side chain blocks transfer of a phosphoryl group from adenosine triphosphate to a hydroxyl moiety of the serine, the threonine, or the tyrosine so that the substrate cannot be phosphorylated by a protein kinase until the photolabile side chain is removed from the substrate; and~~

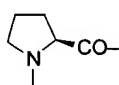
wherein the photolabile side chain comprises the structure



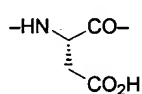
or a fluorophore is attached to the peptide by a linker selected from the group consisting of



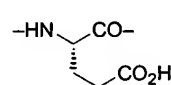
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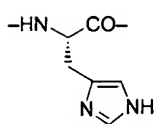
b



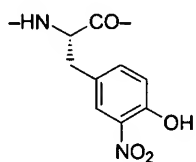
c



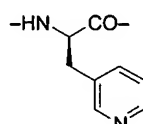
d



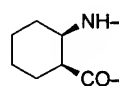
e



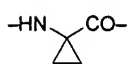
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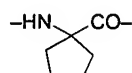
g



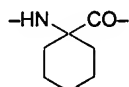
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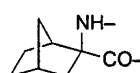
i



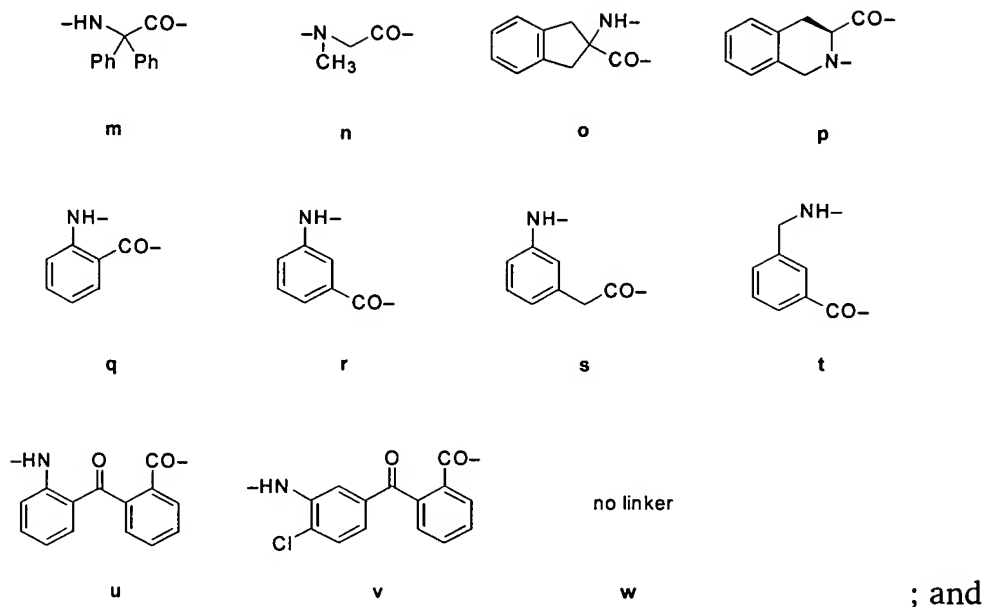
j



k



l



; and

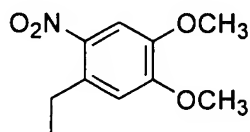
wherein

- (i) the substrate is specific for a protein kinase subtype,
- (ii) the fluorophore is attached to the C-terminal end of the peptide,
- (iii) a fluorophore is attached to each terminal end of the peptide,
- (iv) a first fluorophore is attached to a terminal end of the peptide and a second fluorophore, with photophysical properties distinct from the first fluorophore, is attached to any nonterminal site on the peptide,
- (v) the fluorophore is a 7-nitrobenz-2-oxa-1,3-diazole derivative,
- (vi) the fluorophore is attached to the peptide by a linker selected from the group consisting of a carboxamide linker, an aminobenzoic acid linker, a sulfonamide linker, a urea linker, a thiourea linker, an ester linker, a thioester linker, an alkylamine linker, an arylamine linker, an ether linker, and a thioether linker, and/or
- (vii) the substrate further comprises a carbohydrate, a lipid or a nucleic acid.

57. (Currently amended) The substrate of claim 148, ~~56~~, wherein the photolabile

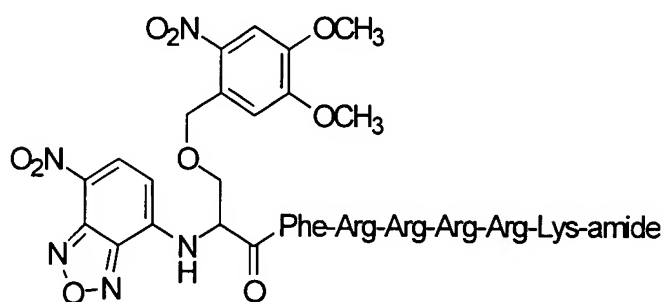
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side chain comprises the structure



58. (Original) The substrate of claim 56, wherein the substrate comprises a serine with a photolabile side chain that blocks phosphoryl transfer.

59. (Currently amended) The substrate of claim 56, ~~58~~, wherein the substrate has the structure



60. (Currently amended) The substrate of claim 148, ~~56~~, wherein after removal of the photolabile side chain, phosphorylation by a protein kinase of the terminal serine, the terminal threonine, or the terminal tyrosine to which the fluorophore is attached produces at least a 20% change in fluorescence intensity.

61. (Currently amended) The substrate of claim 148, ~~56~~, wherein after removal of the photolabile side chain, phosphorylation by a protein kinase of the terminal serine, the terminal threonine, or the terminal tyrosine to which the fluorophore is attached produces

at least a 20% increase in fluorescence intensity.

62. (Currently amended) The substrate of claim 148, ~~56~~, wherein after removal of the photolabile side chain, phosphorylation by a protein kinase of the terminal serine, the terminal threonine, or the terminal tyrosine to which the fluorophore is attached produces at least a 20% decrease in fluorescence intensity.

63. (Previously presented) The substrate of claim 60, wherein phosphorylation of the substrate by the protein kinase produces at least a 70% change in fluorescence intensity.

64. (Original) The substrate of claim 63, wherein phosphorylation of the substrate by the protein kinase produces at least a 100% change in fluorescence intensity.

65. (Original) The substrate of claim 64, wherein phosphorylation of the substrate by the protein kinase produces at least a 150% change in fluorescence intensity.

66. (Original) The substrate of claim 65, wherein phosphorylation of the substrate by the protein kinase produces at least a 250% change in fluorescence intensity.

67. (Previously presented) The substrate of claim 56, wherein the substrate is specific for a protein kinase subtype.

68. (Original) The substrate of claim 67, wherein the substrate is specific for protein kinase C.

69. (Original) The substrate of claim 68, wherein the substrate is specific for isoforms α , β , and γ of protein kinase C.

70. (Withdrawn) The substrate of claim 67, wherein the substrate is specific for protein kinase A, protein kinase B, protein kinase D, protein kinase G, Ca^{+} /calmodulin-dependent protein kinase, mitogen-activated protein kinase, protein kinase mos, protein kinase raf, protein tyrosine kinase, tyrosine kinase abl, tyrosine kinase src, tyrosine kinase yes, tyrosine kinase fps, tyrosine kinase met, cyclin-dependent protein kinase, or cdc2 kinase.

71. (Previously presented) The substrate of claim 56, wherein the substrate further comprises a carbohydrate, a lipid or a nucleic acid.

72. (Canceled)

73. (Previously presented) The substrate of claim 56, wherein the fluorophore is attached to the C-terminal end of the peptide.

74. (Previously presented) The substrate of claim 56, wherein the fluorophore is attached to the N-terminal end of the peptide.

75. (Previously presented) The substrate of claim 56, wherein a fluorophore is attached to each terminal end of the peptide.

76. (Original) The substrate of claim 75, wherein fluorophores with distinct photophysical properties are attached to different terminal ends of the peptide.

77. (Previously presented) The substrate of claim 56, wherein a first fluorophore is attached to a terminal end of the peptide and a second fluorophore, with photophysical properties distinct from the first fluorophore, is attached to any nonterminal site on the peptide.

78. (Previously presented) The substrate of claim 56, wherein the fluorophore is a 7-nitrobenz-2-oxa-1,3-diazole derivative.

79. (Withdrawn) The substrate of claim 56, wherein the fluorophore is a fluorescein derivative.

80. (Withdrawn) The substrate of claim 56, wherein the fluorophore is selected from the group consisting of a dansyl derivative, an acridine derivative, an Alexa Fluor derivative, a BODIPY derivative, an Oregon Green derivative, a Rhodamine Green derivative, a Rhodamine Red-X derivative, a Texas Red derivative, a Cascade Blue derivative, a Cascade Yellow derivative, a Marina Blue derivative, a Pacific Blue derivative, an AMCA-X derivative, and a coumarin derivative.

81. (Canceled)

82. (Withdrawn) The substrate of claim 56, wherein the fluorophore is attached to the peptide by a metal chelating linker.

83. (Previously presented) The substrate of claim 56, wherein the fluorophore is attached to the peptide by a linker selected from the group consisting of a carboxamide

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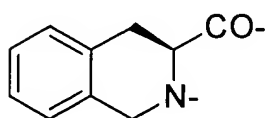
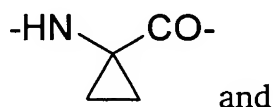
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linker, an aminobenzoic acid linker, a sulfonamide linker, a urea linker, a thiourea linker, an ester linker, a thioester linker, an alkylamine linker, an arylamine linker, an ether linker, and a thioether linker.

84. (Withdrawn) The substrate of claim 56, wherein the fluorophore is attached to the peptide by a linker selected from the group consisting of N-methyl glycine, L-proline, D-proline,



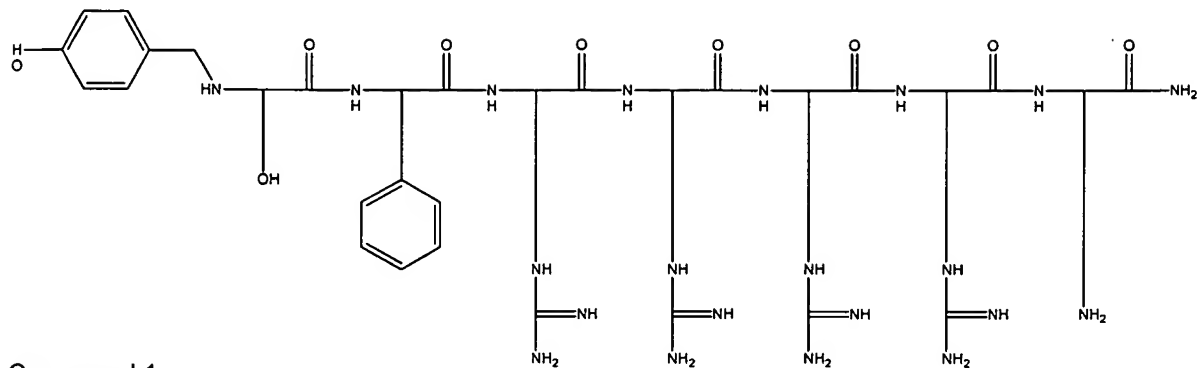
85. (Canceled)

86. (Previously presented) A composition comprising the substrate of claim 56, and a carrier.

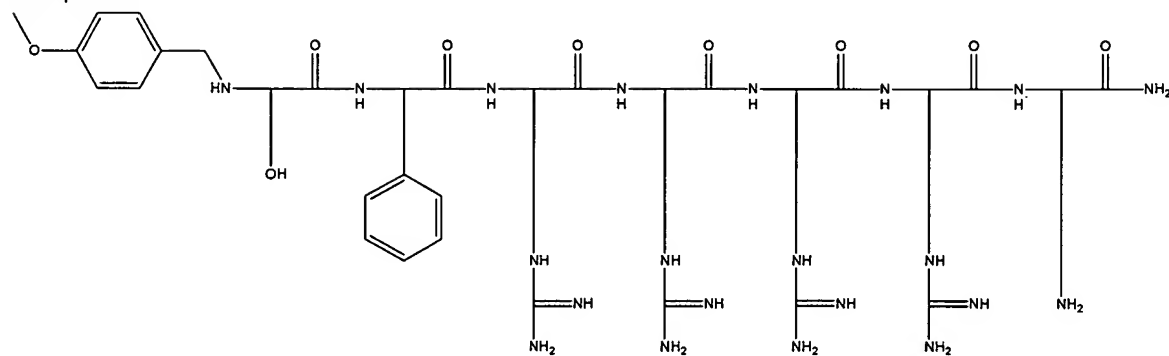
87. (Original) The composition of claim 86, wherein the composition is a pharmaceutical composition and the carrier is a pharmaceutically acceptable carrier.

88. (Previously presented) A chemical compound selected from the group of compounds consisting of:

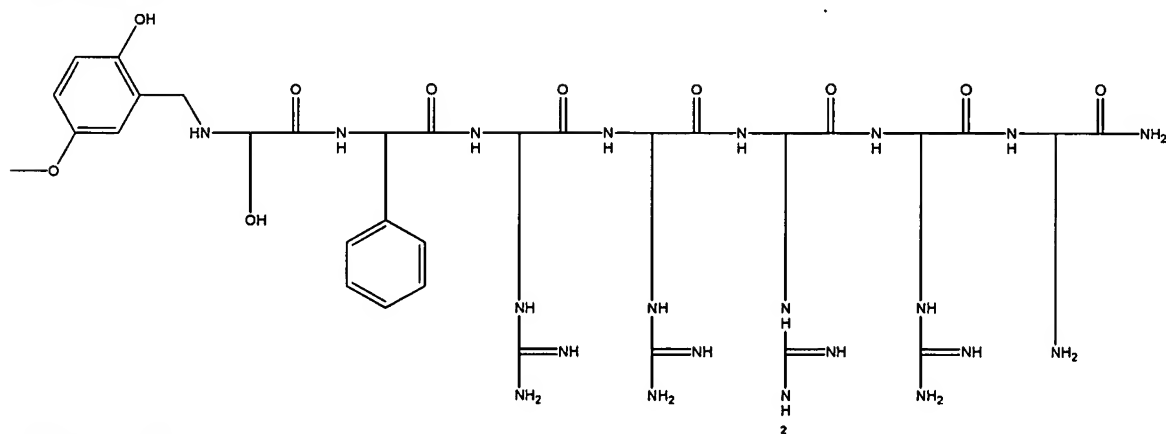
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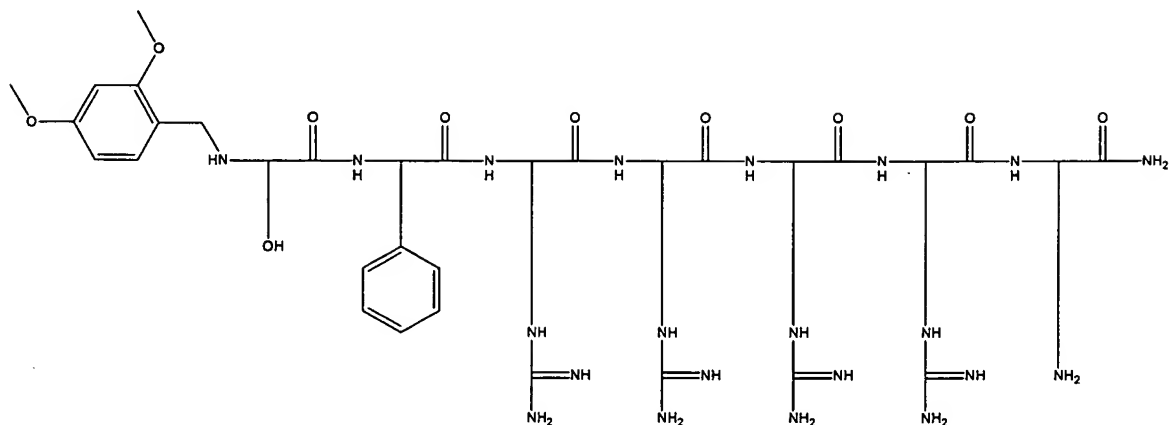
Compound 1



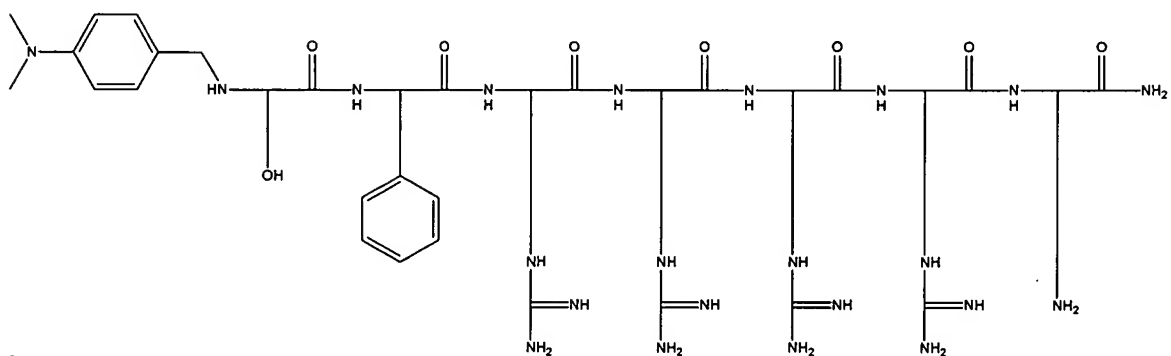
Compound 2



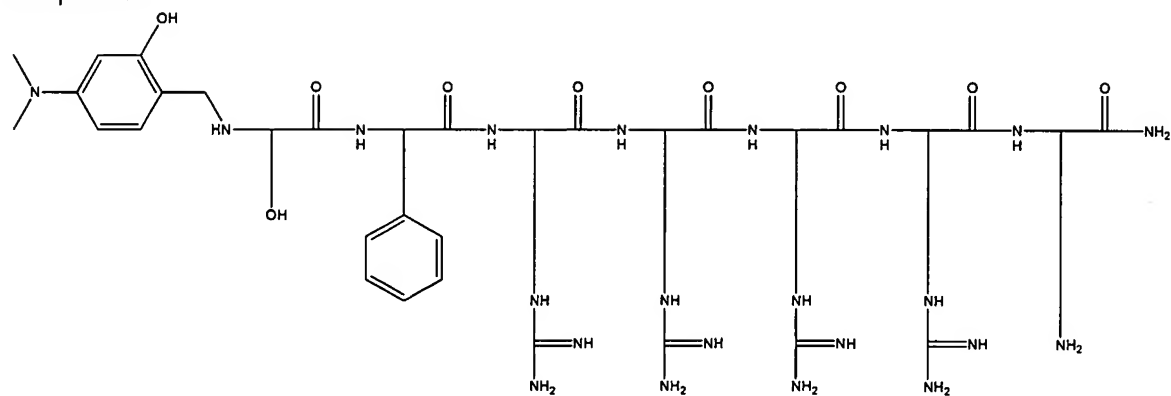
Compound 3



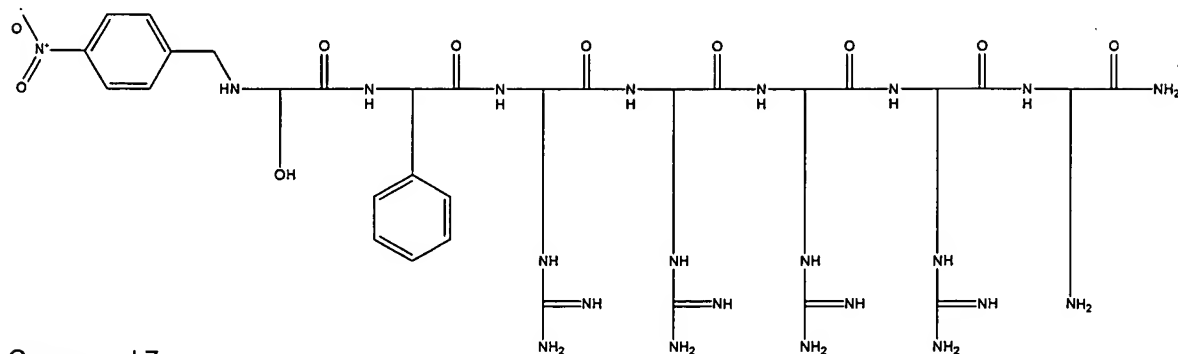
Compound 4



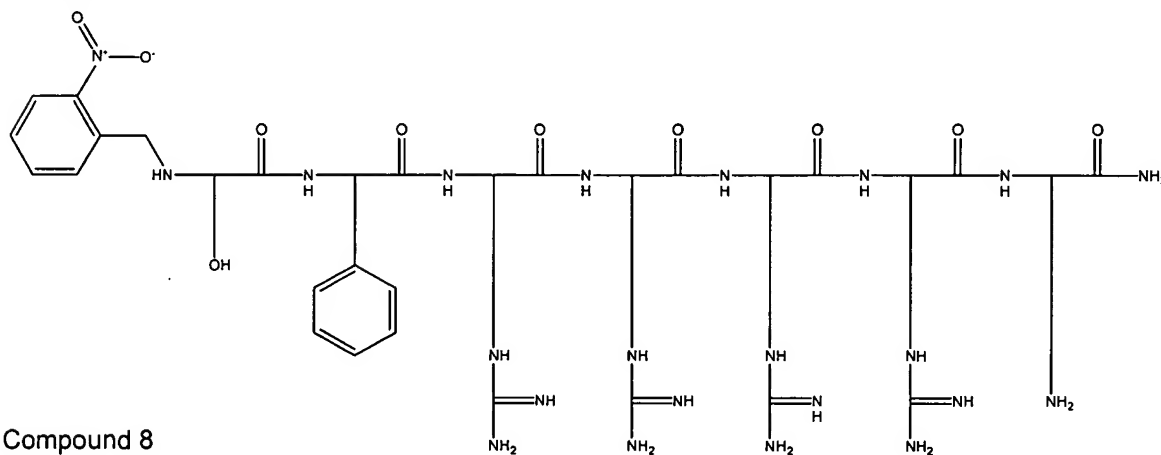
Compound 5



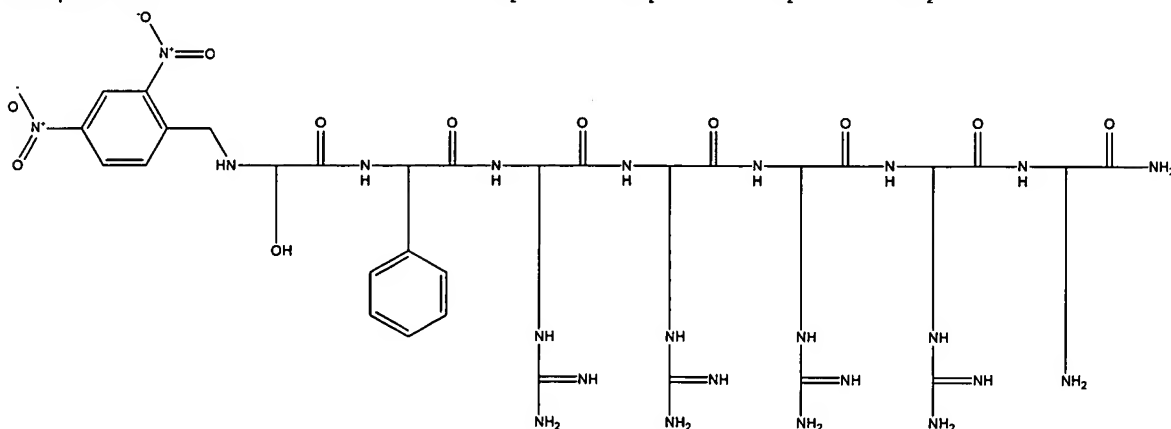
Compound 6



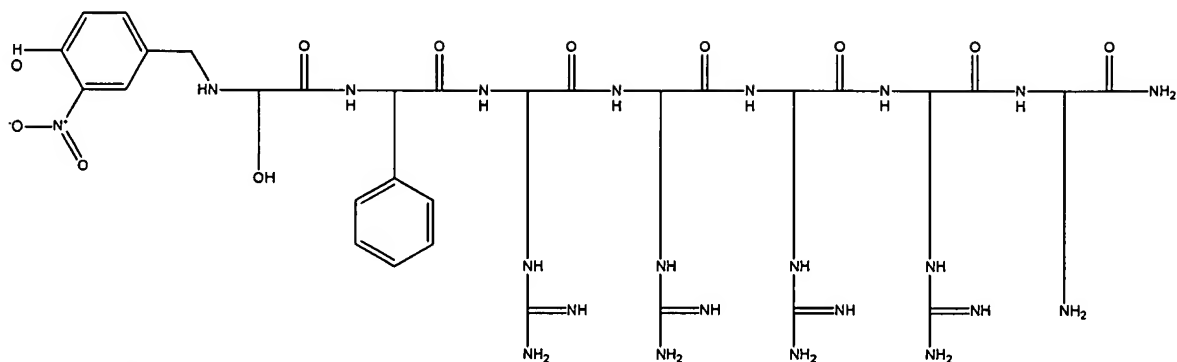
Compound 7



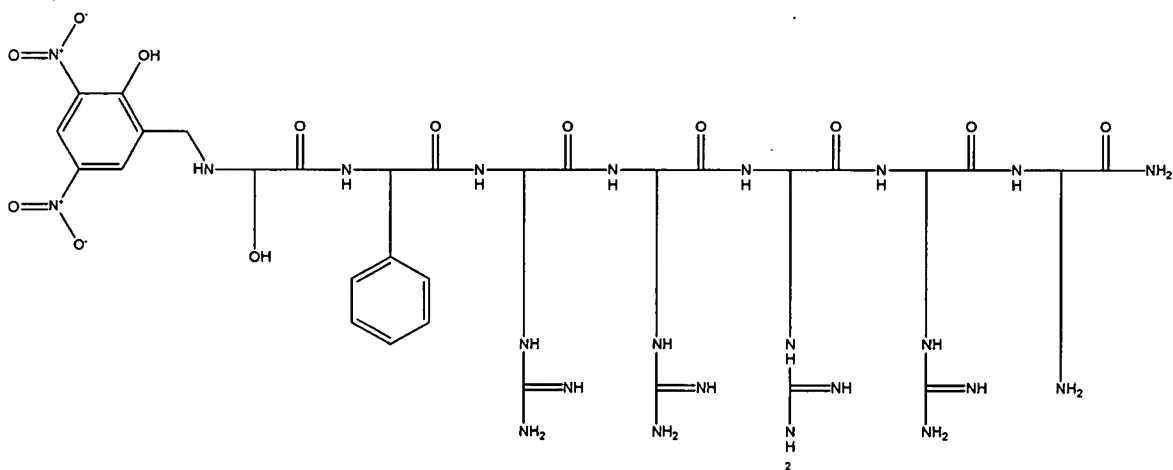
Compound 8



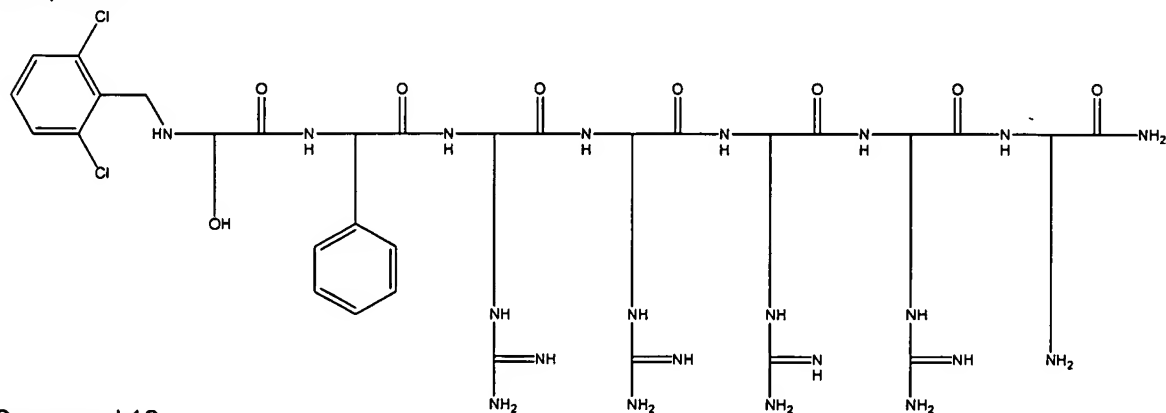
Compound 9



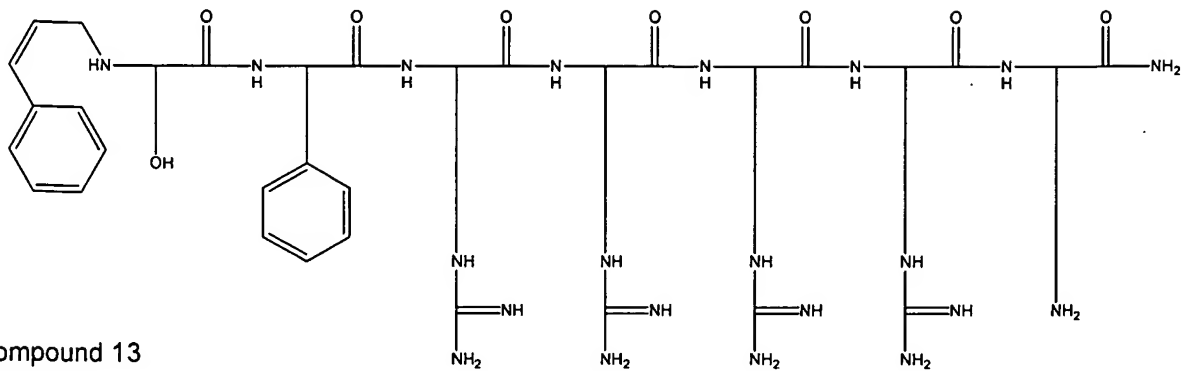
Compound 10



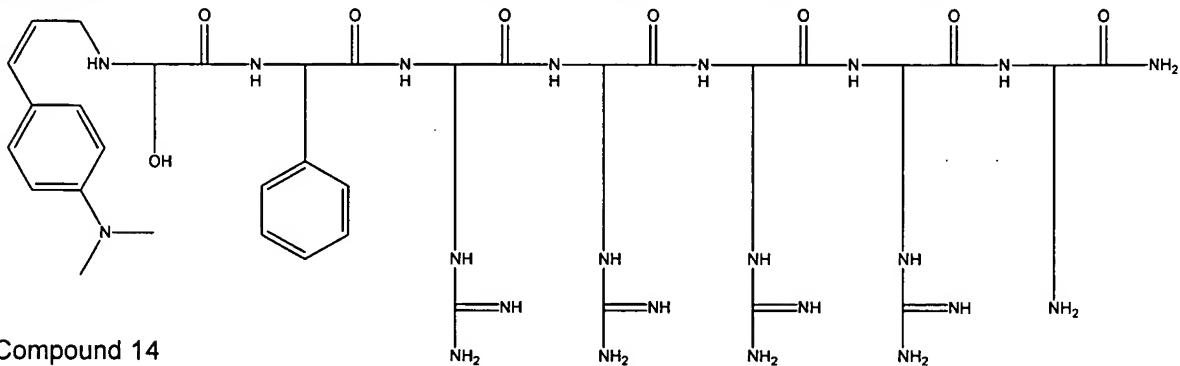
Compound 11



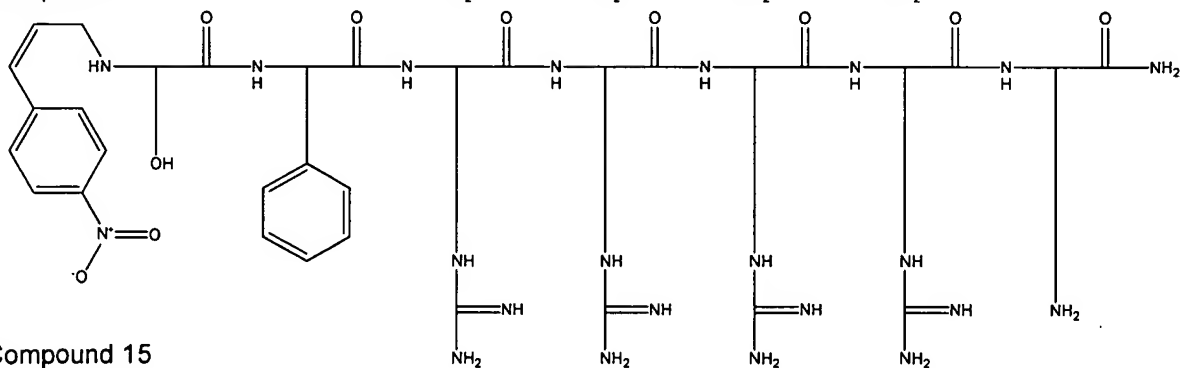
Compound 12



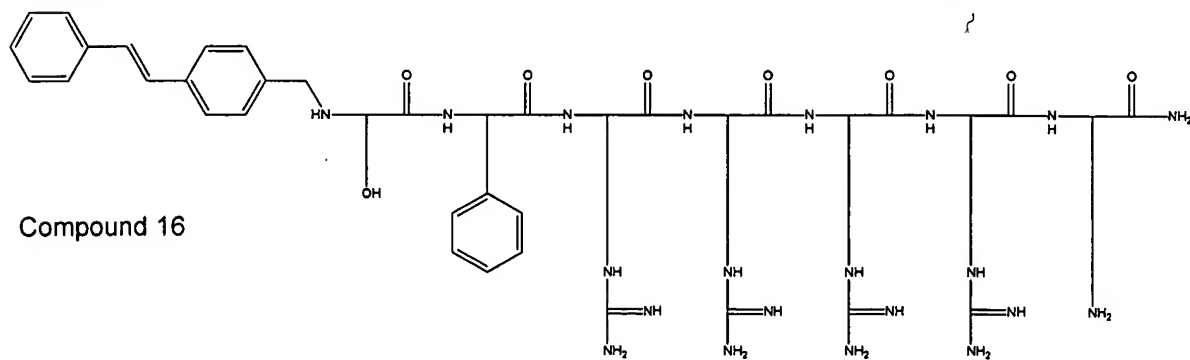
Compound 13



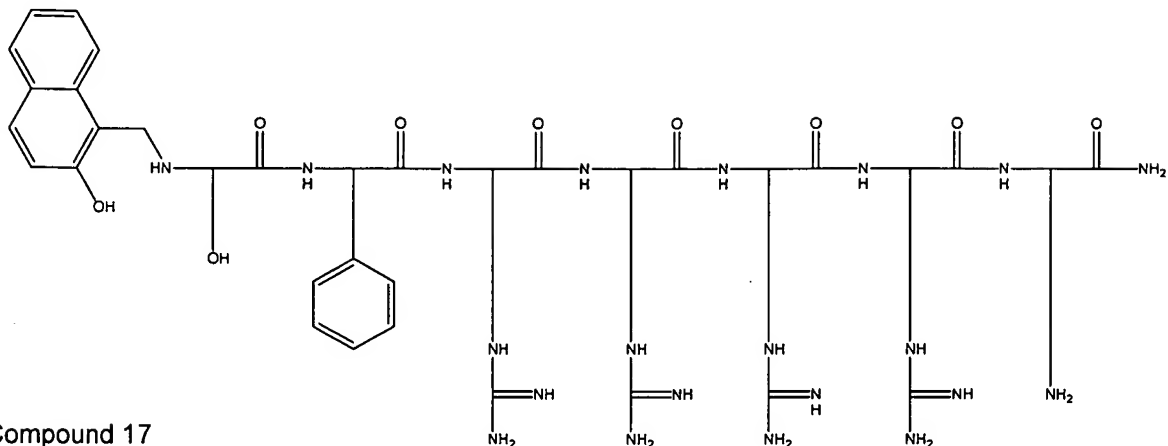
Compound 14



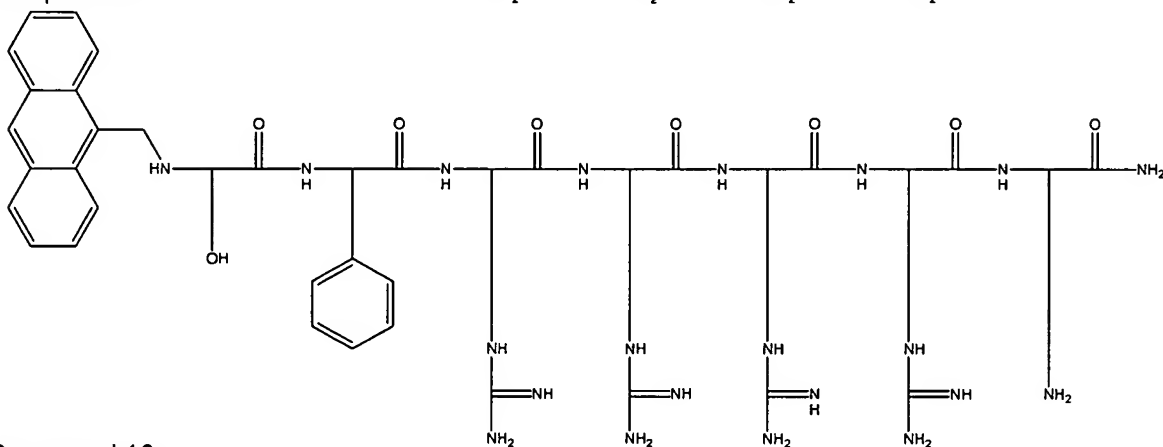
Compound 15



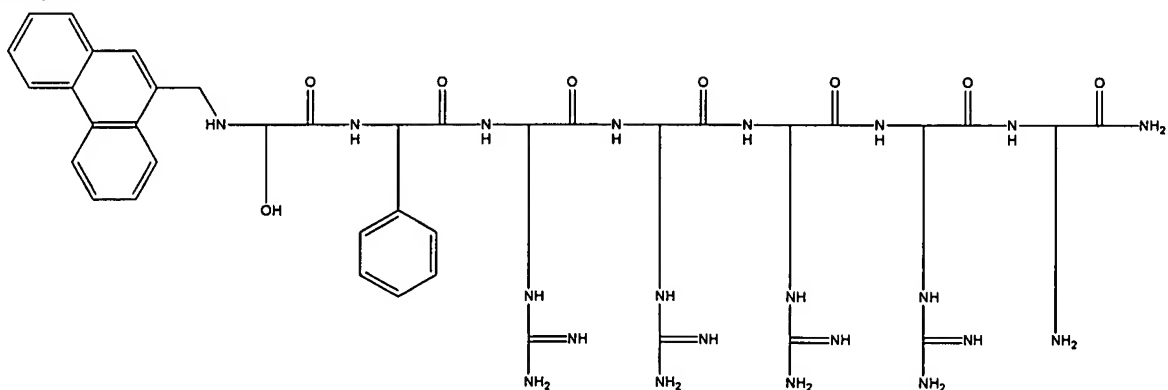
Compound 16



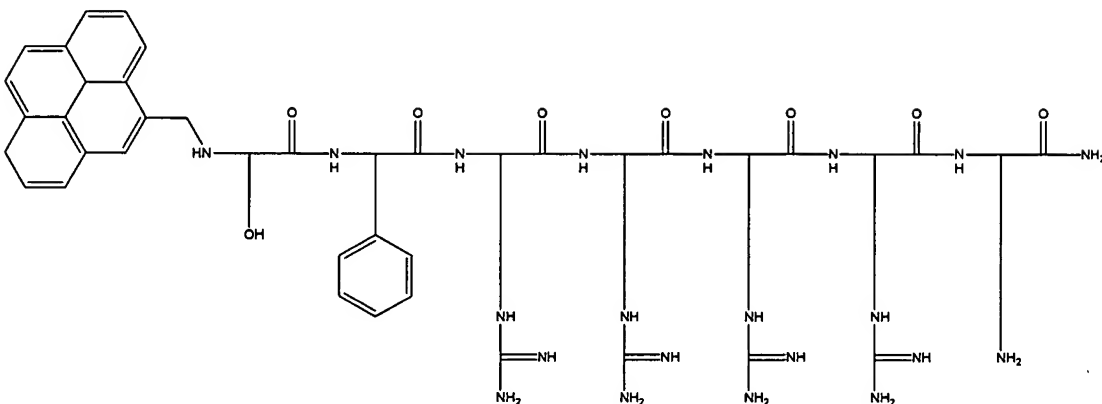
Compound 17



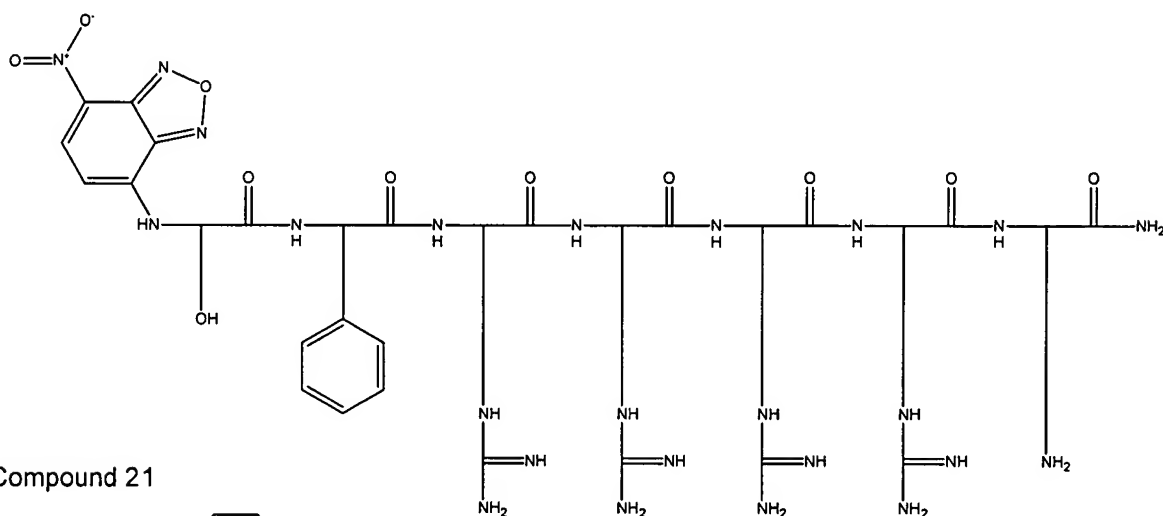
Compound 18



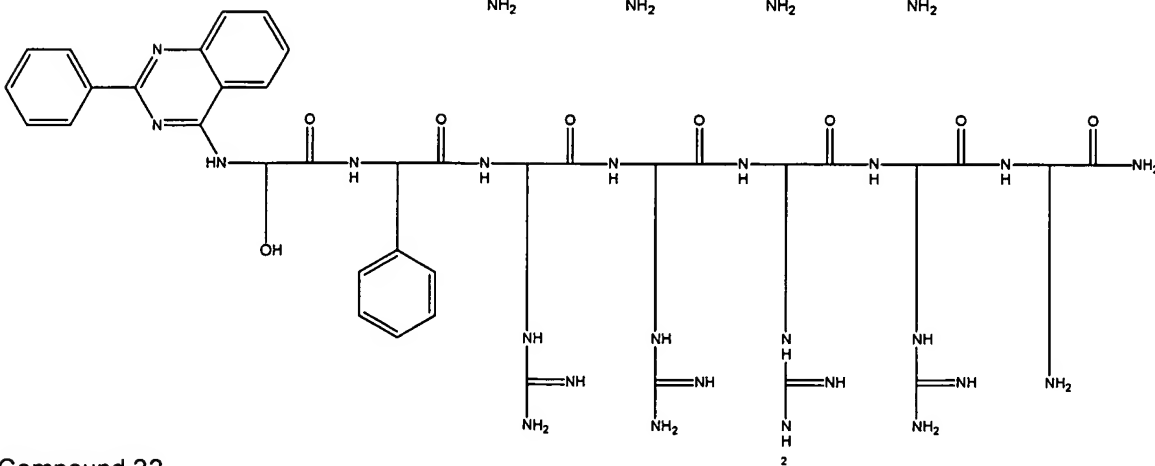
Compound 19



Compound 20

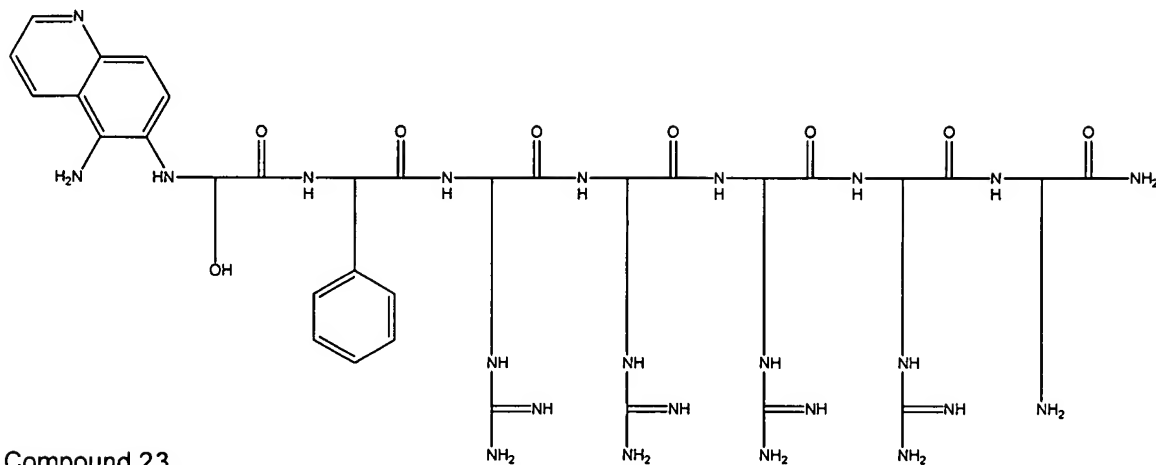


Compound 21

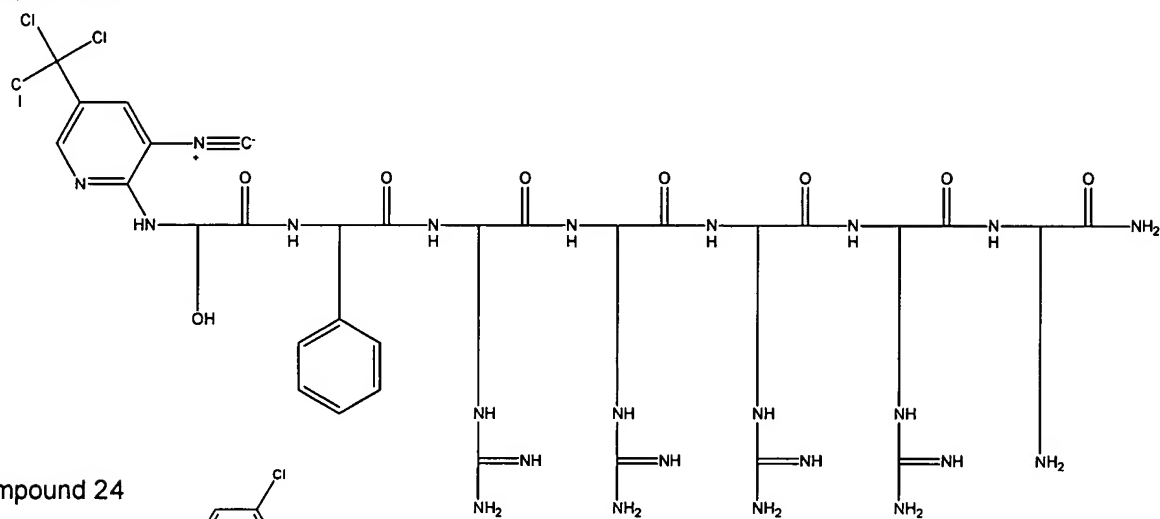


Compound 22

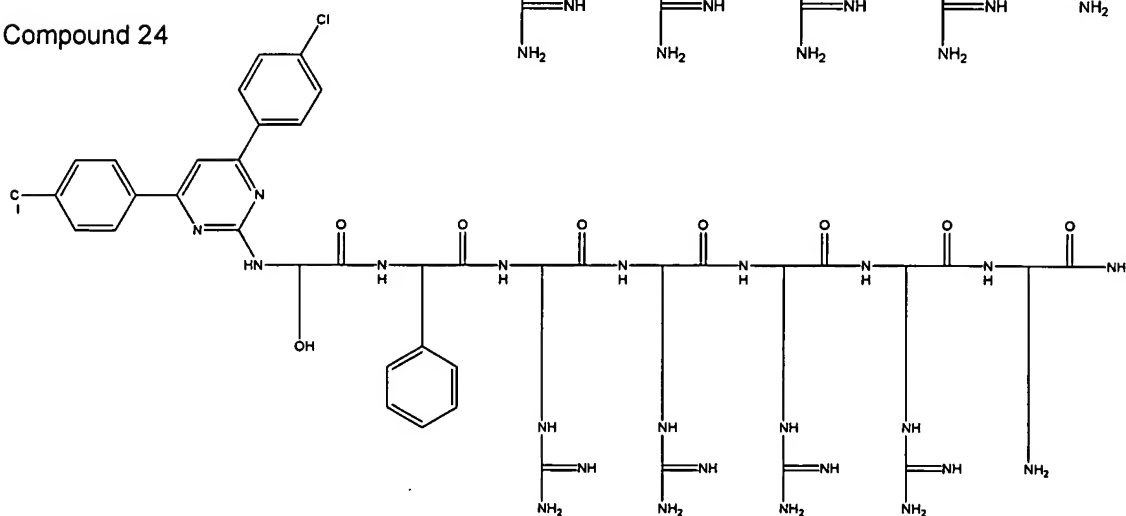
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Compound 23

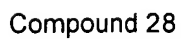
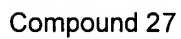


Compound 24

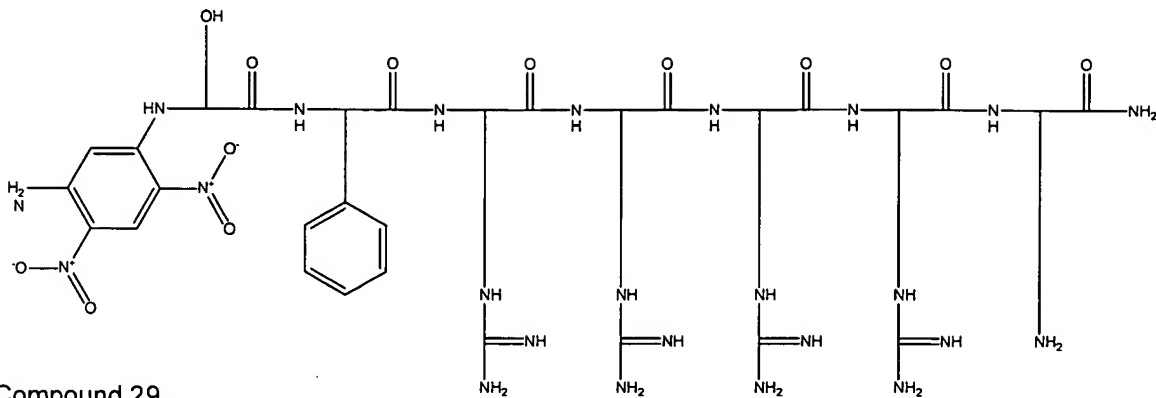


Compound 25

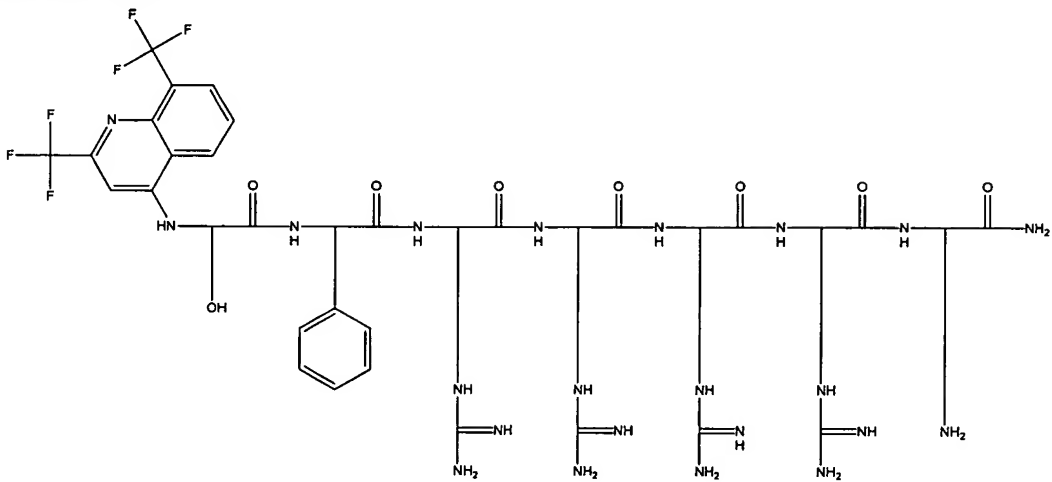
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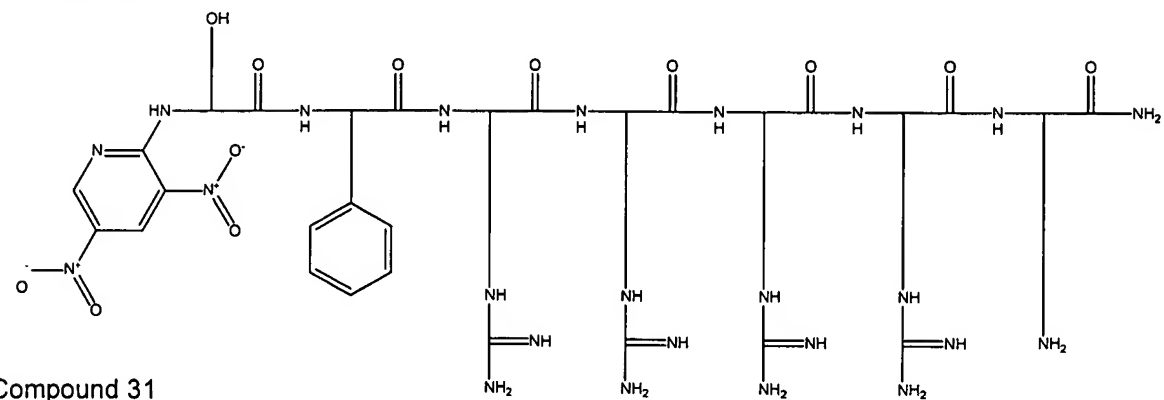
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Compound 29



Compound 30



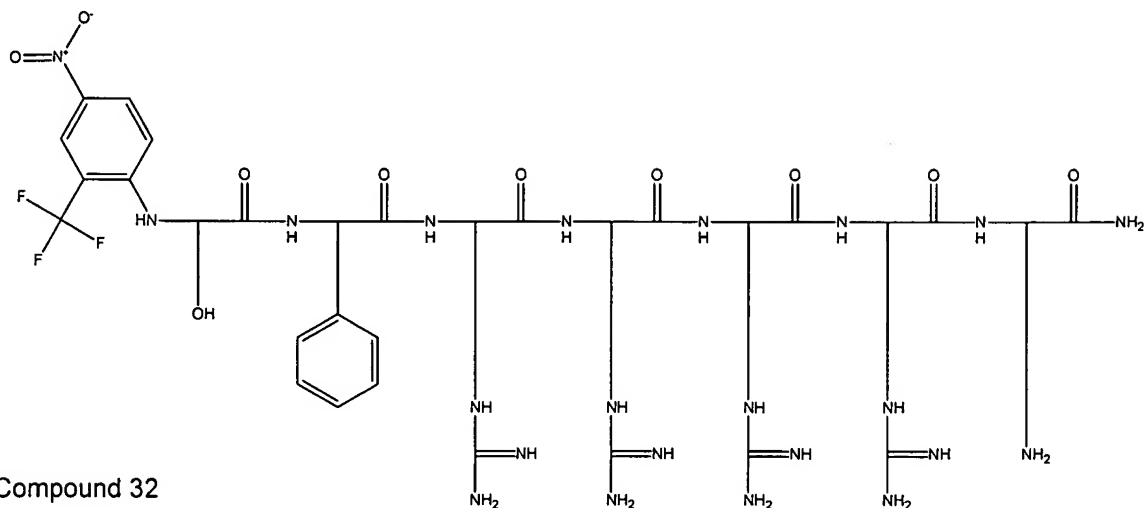
Compound 31

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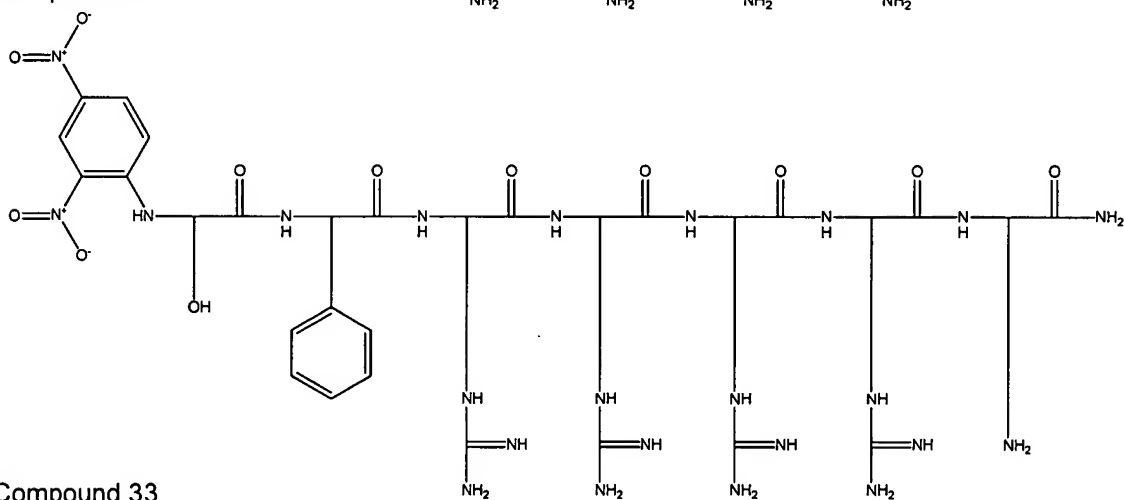
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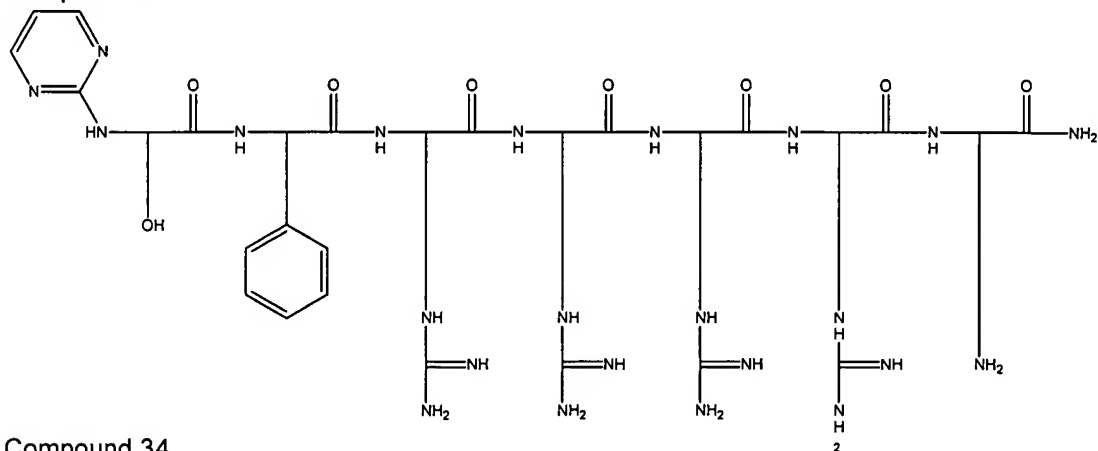
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Compound 32

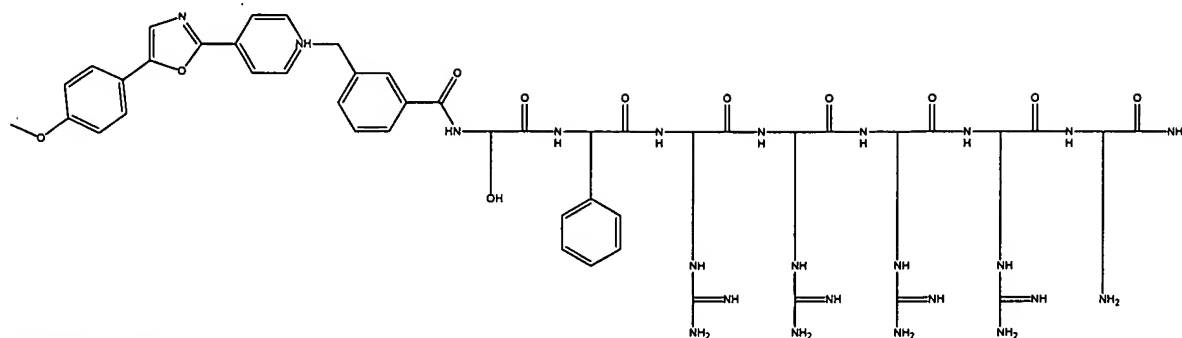


Compound 33

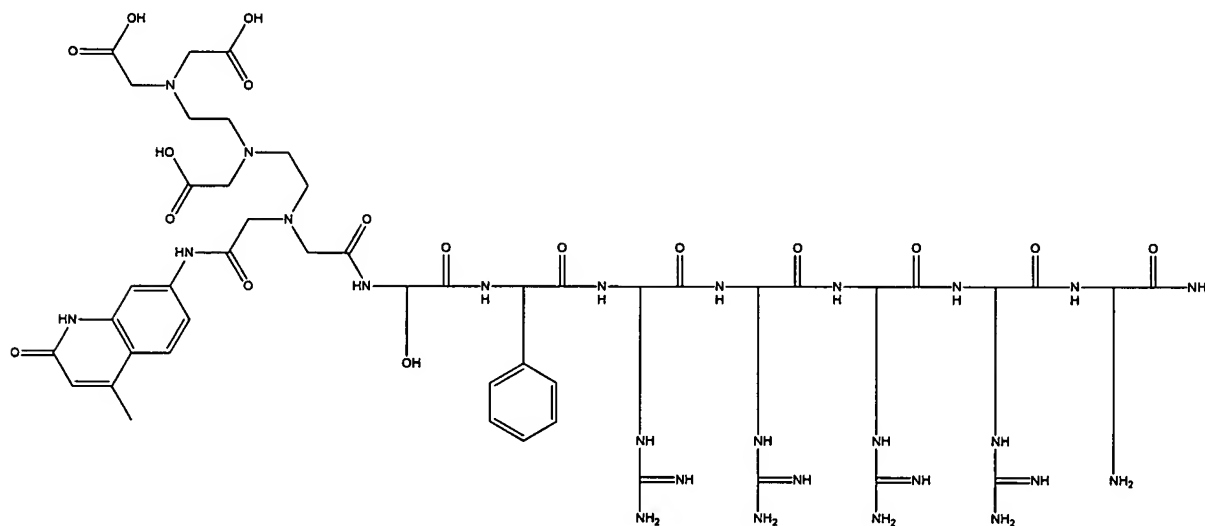


Compound 34

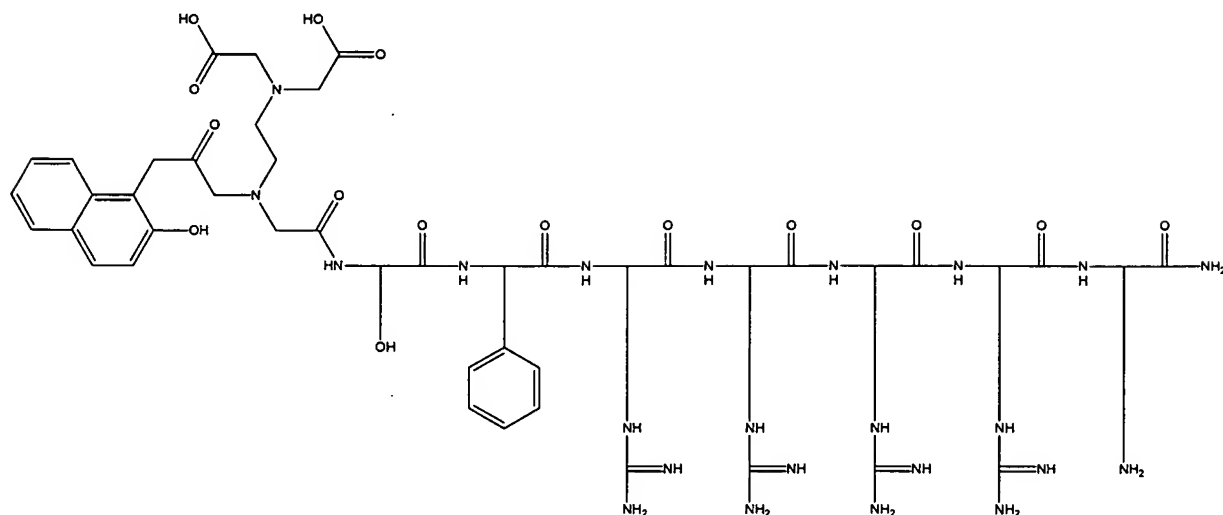
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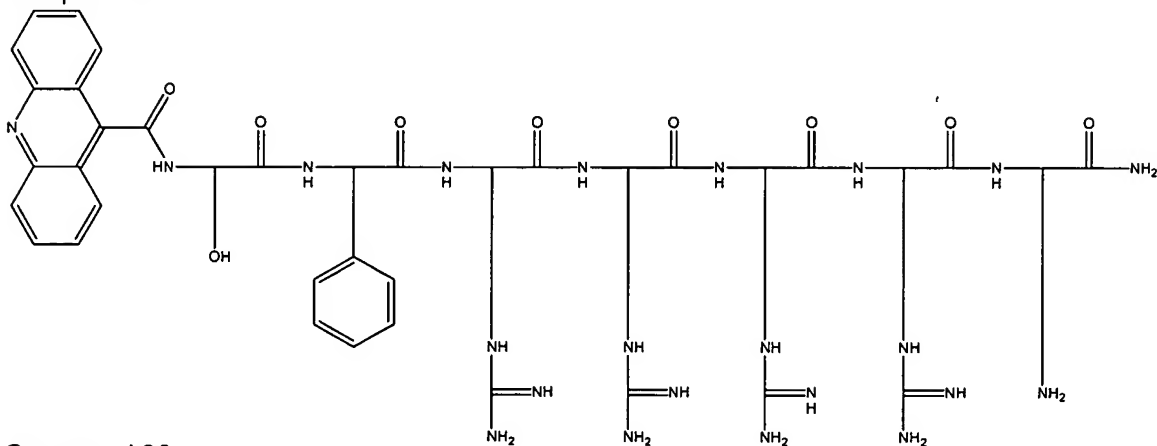
Compound 35



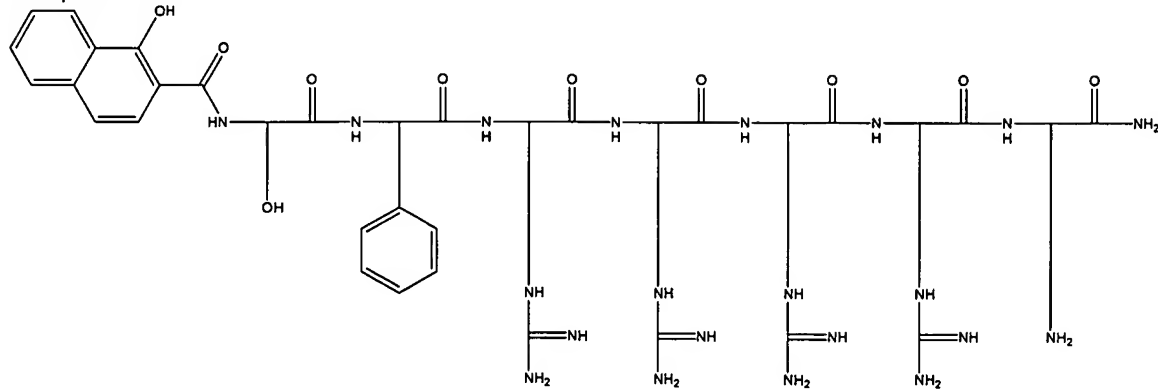
Compound 36



Compound 37

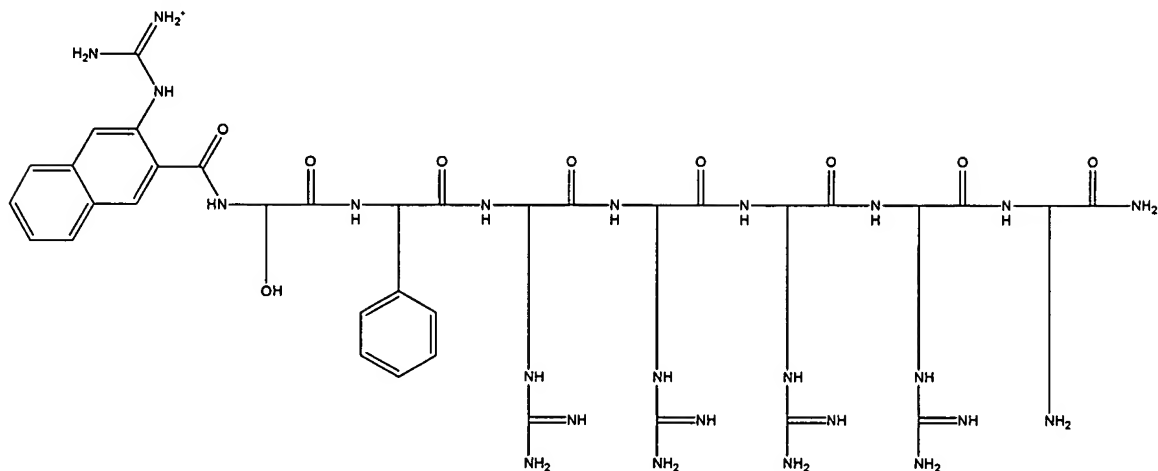


Compound 38

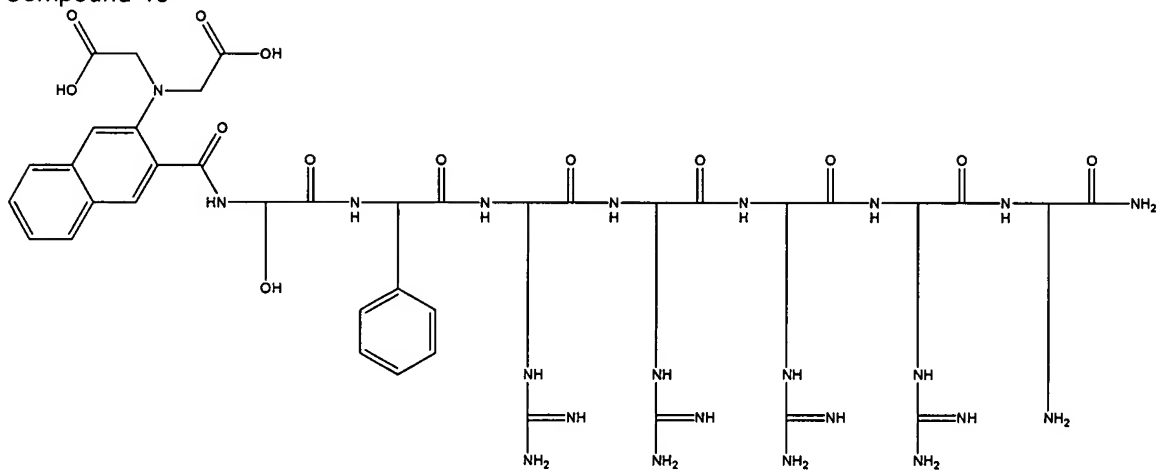


Compound 39

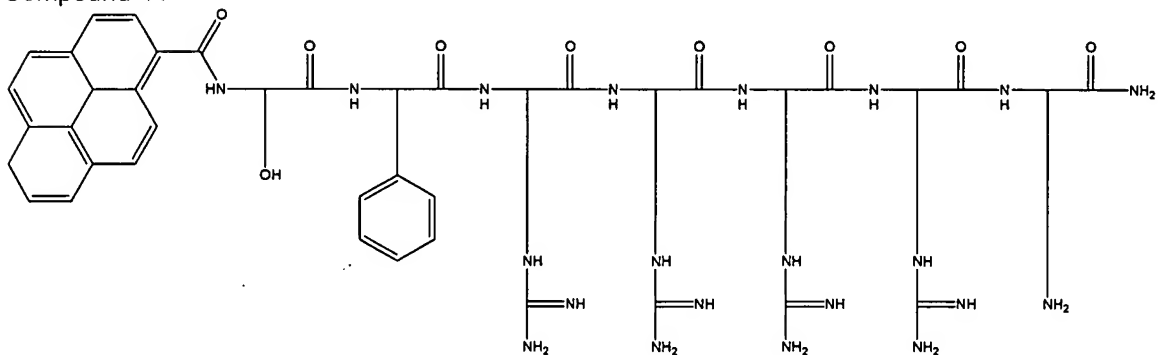
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Compound 40

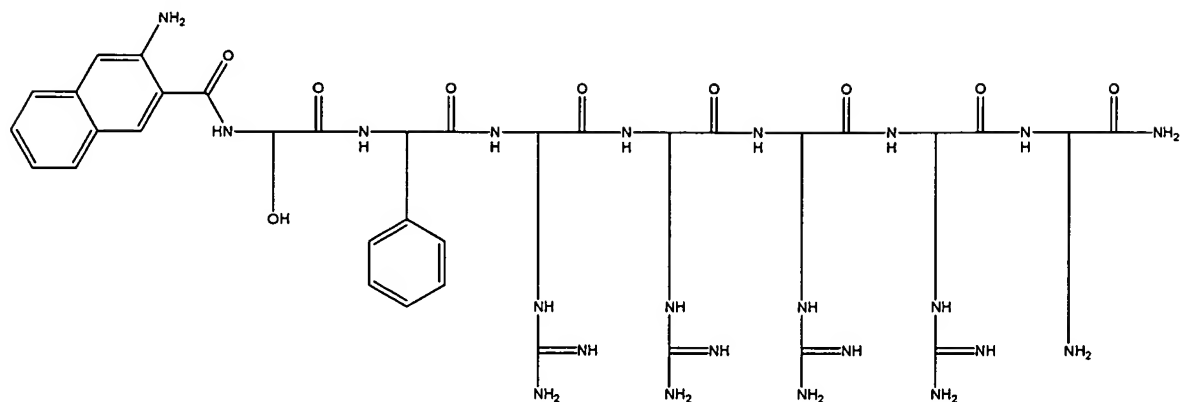


Compound 41

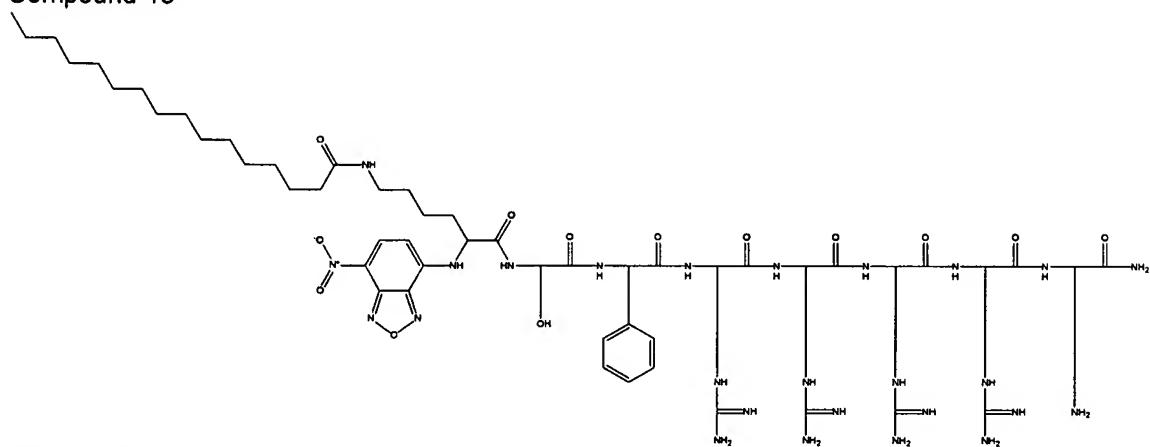


Compound 42

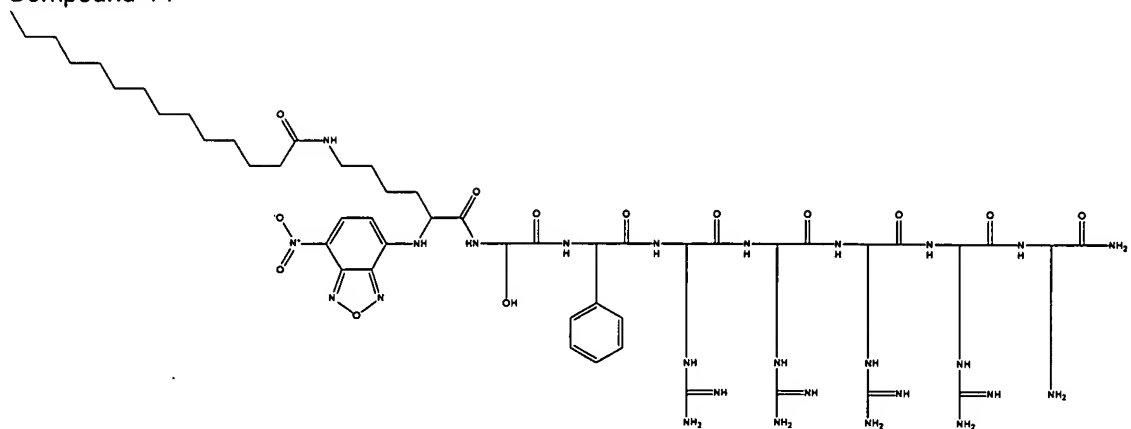
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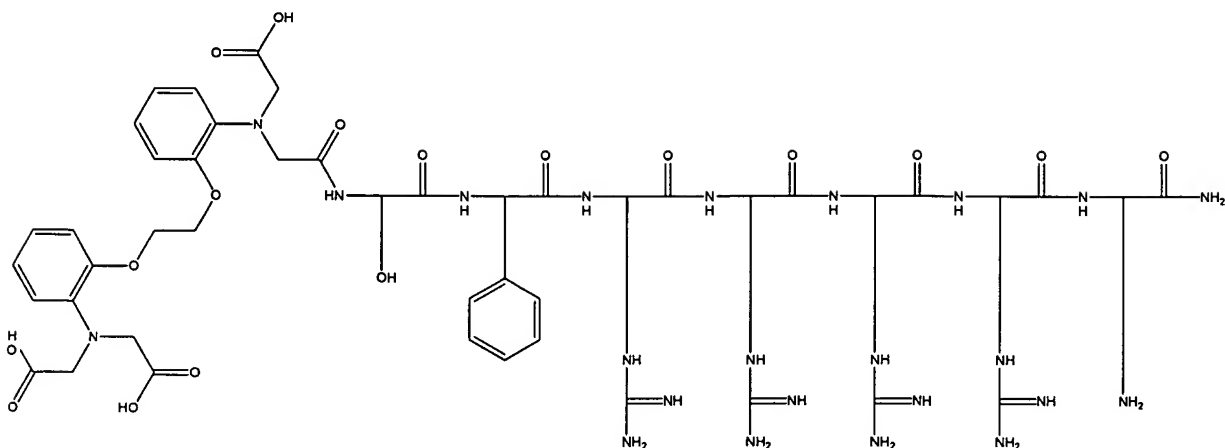
Compound 43



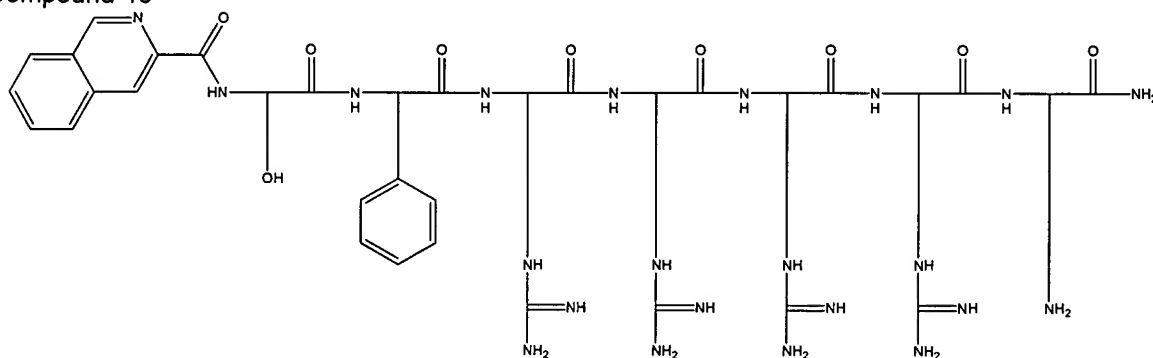
Compound 44



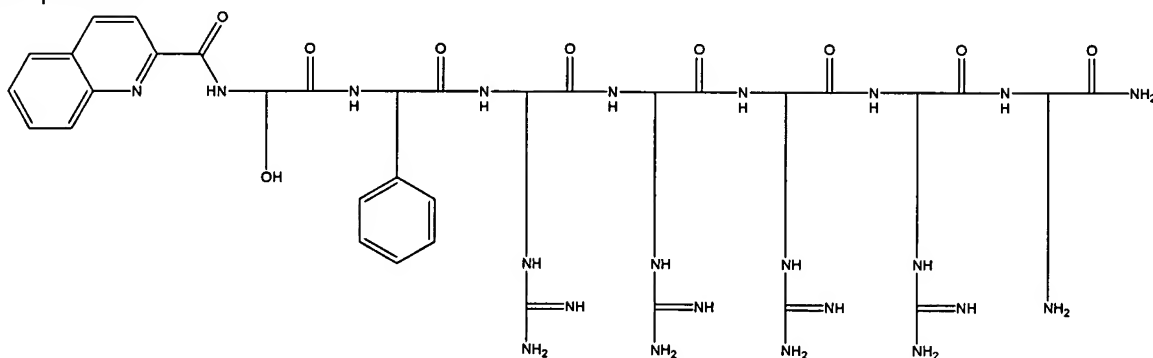
Compound 45



Compound 46

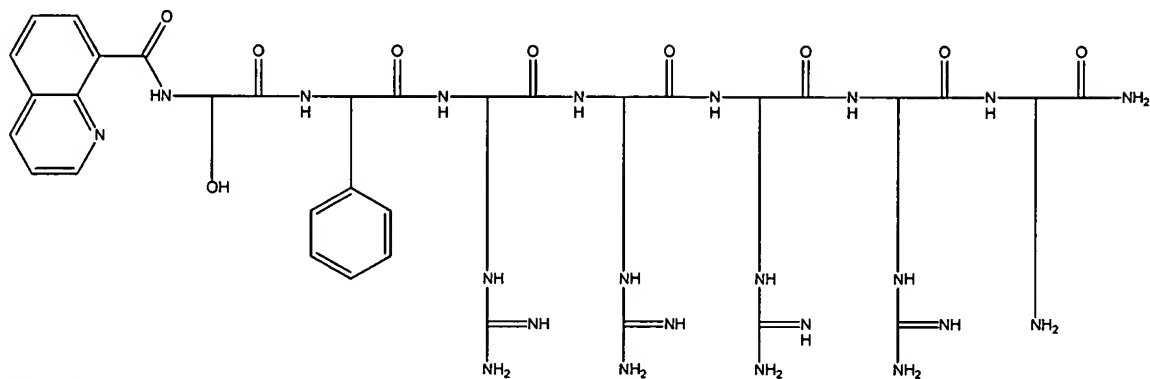


Compound 47

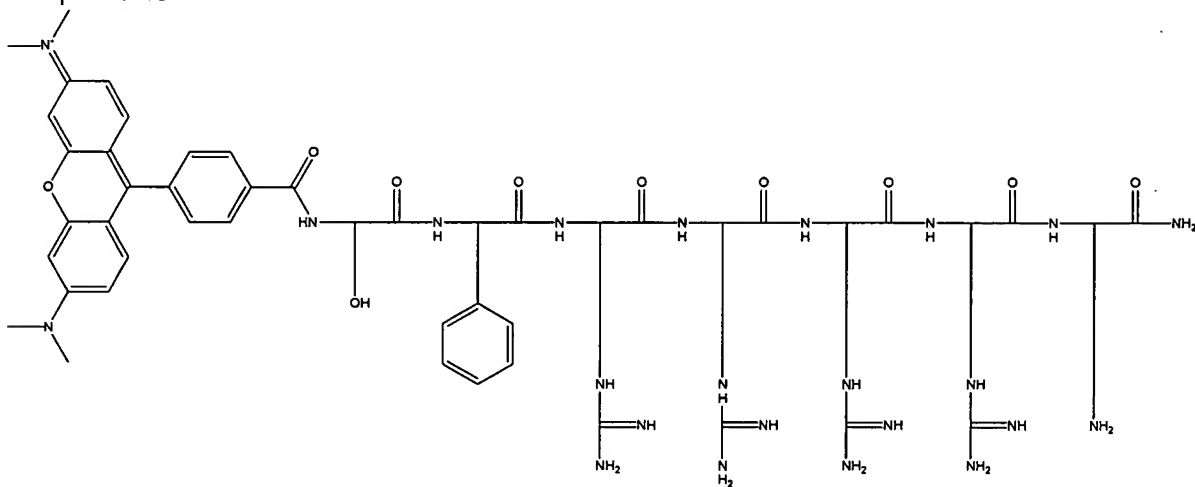


Compound 48

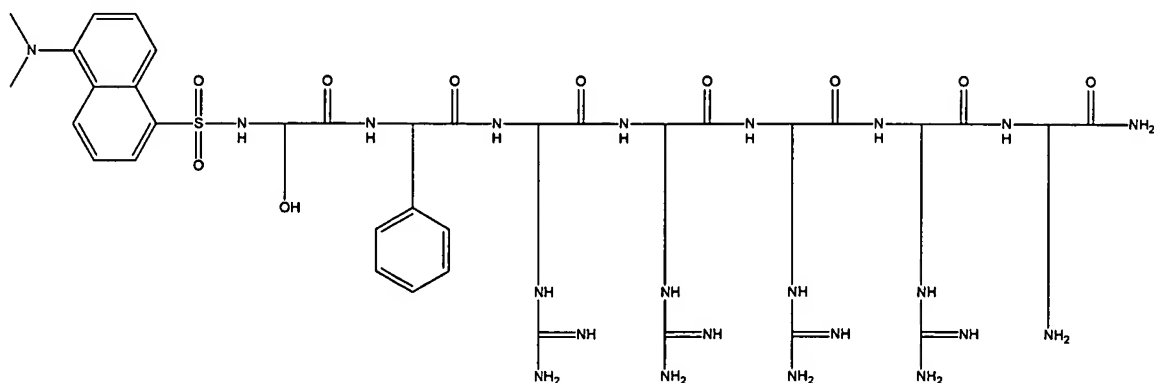
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Compound 49



Compound 50



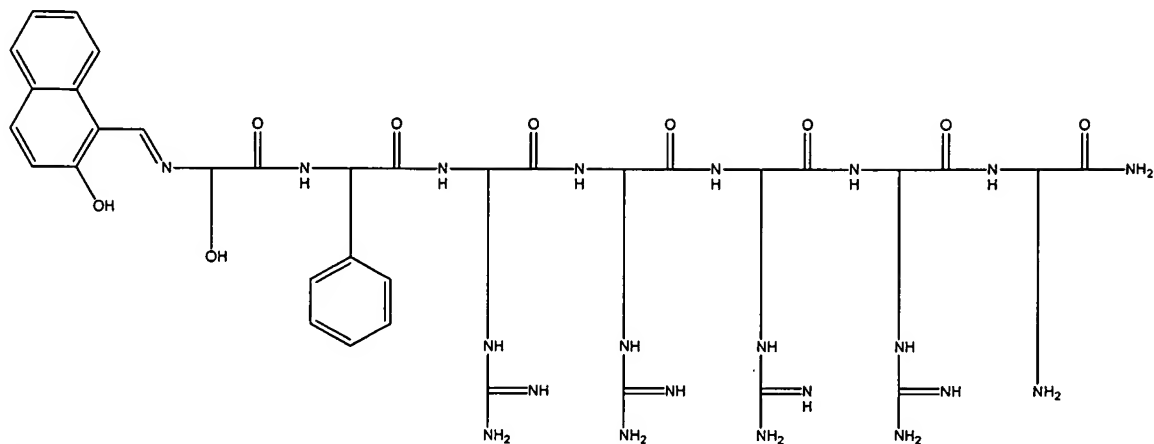
Compound 51

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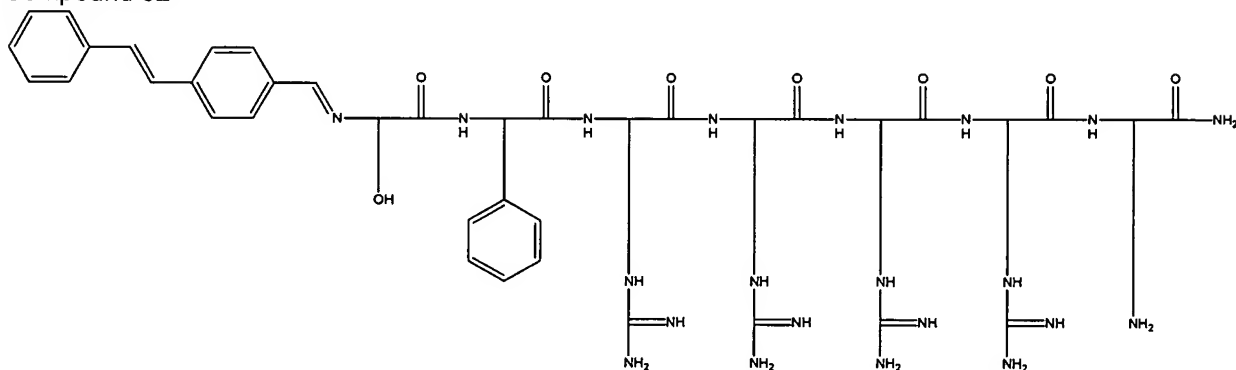
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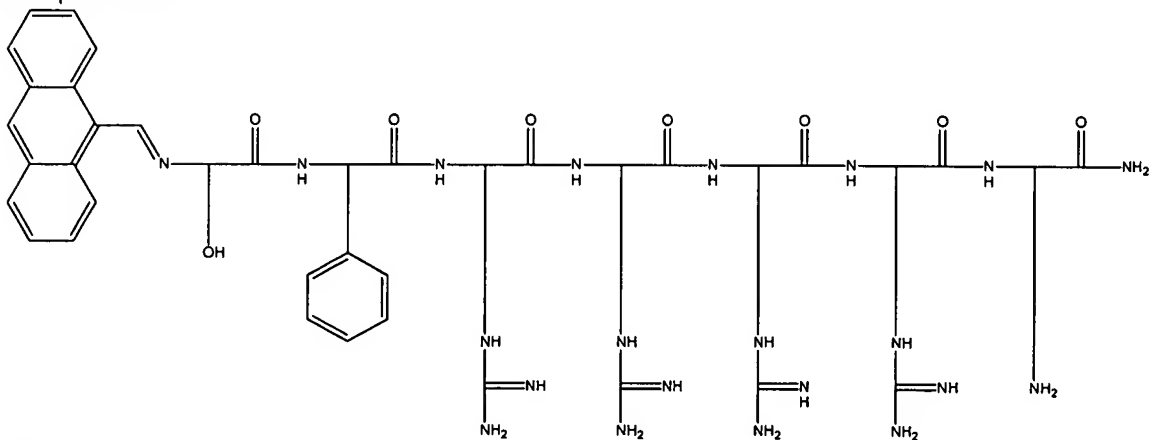
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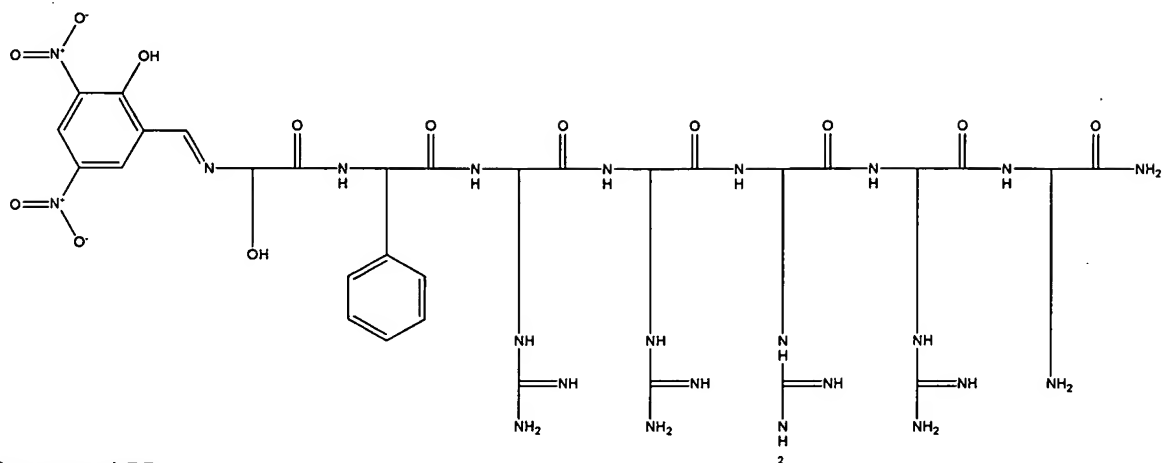
Compound 52



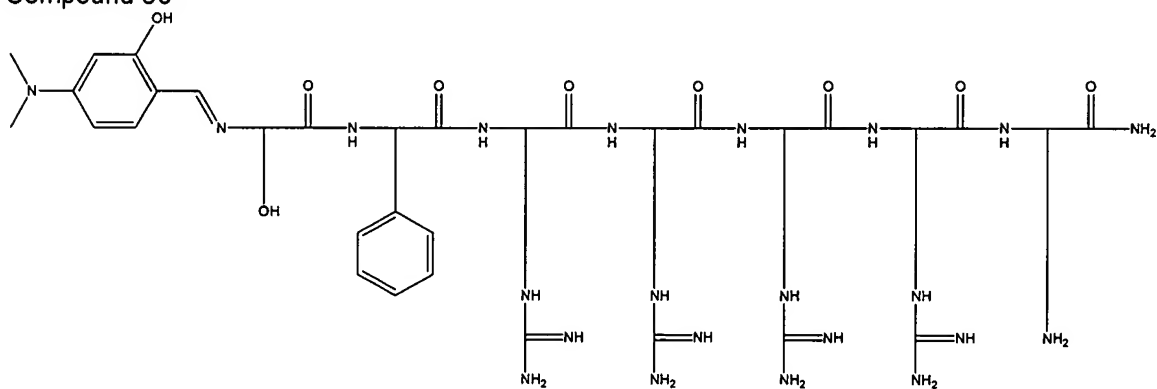
Compound 53



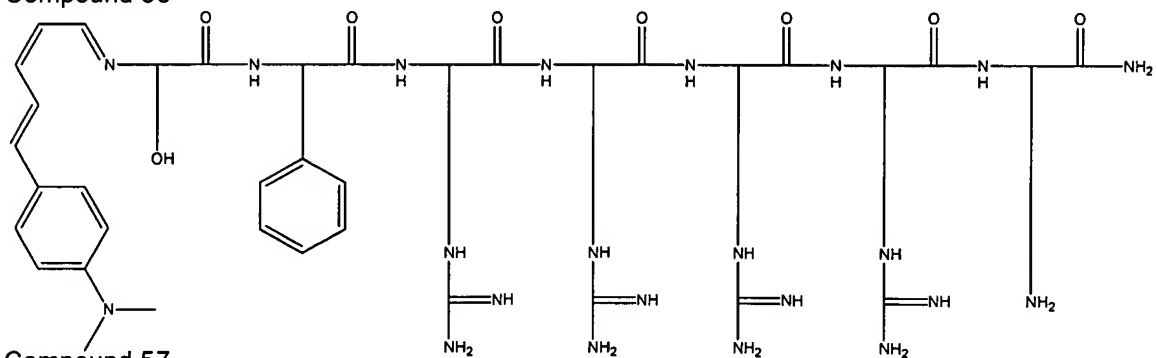
Compound 54



Compound 55



Compound 56



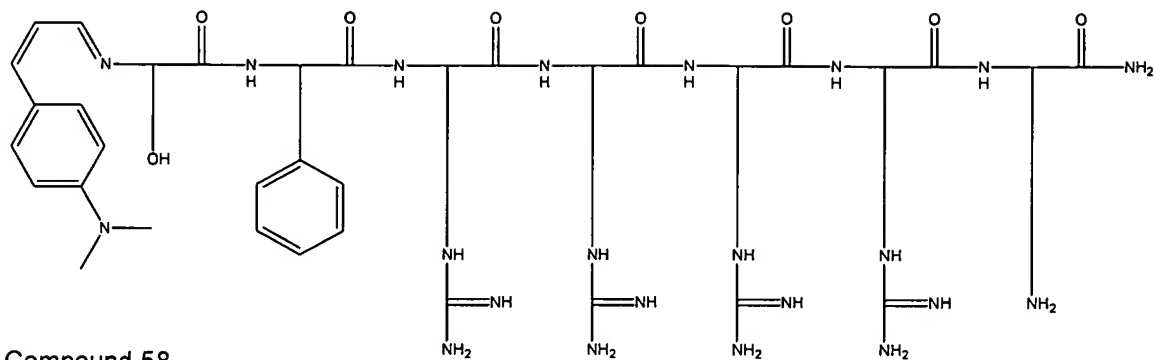
Compound 57

Applicant: David S. Lawrence

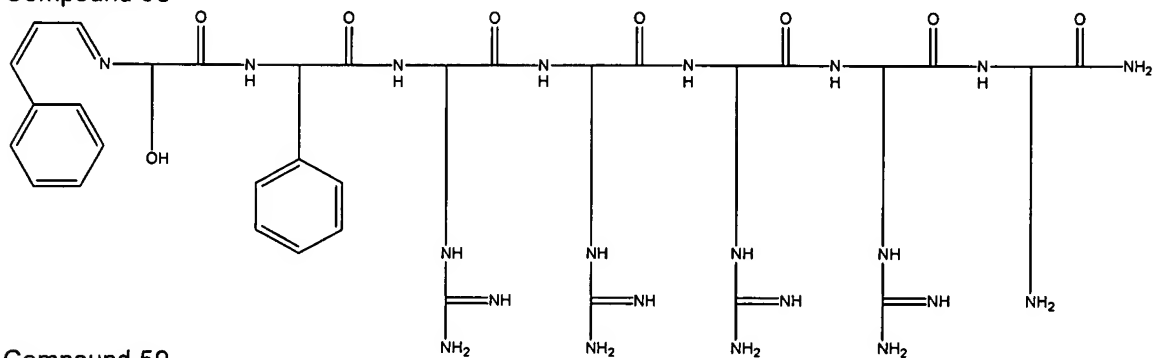
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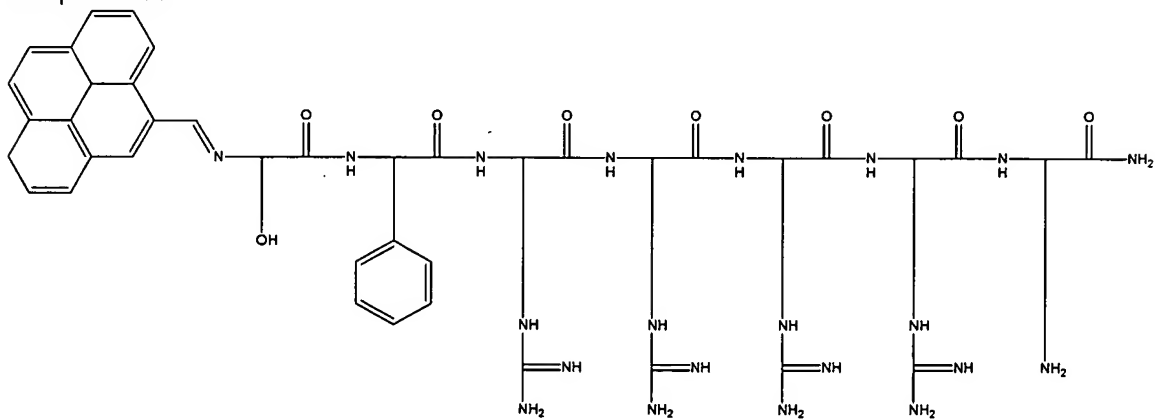
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Compound 58

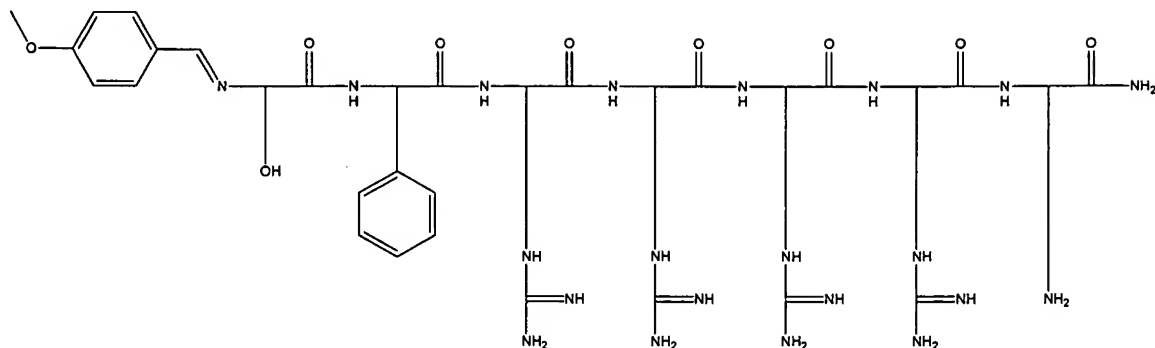


Compound 59

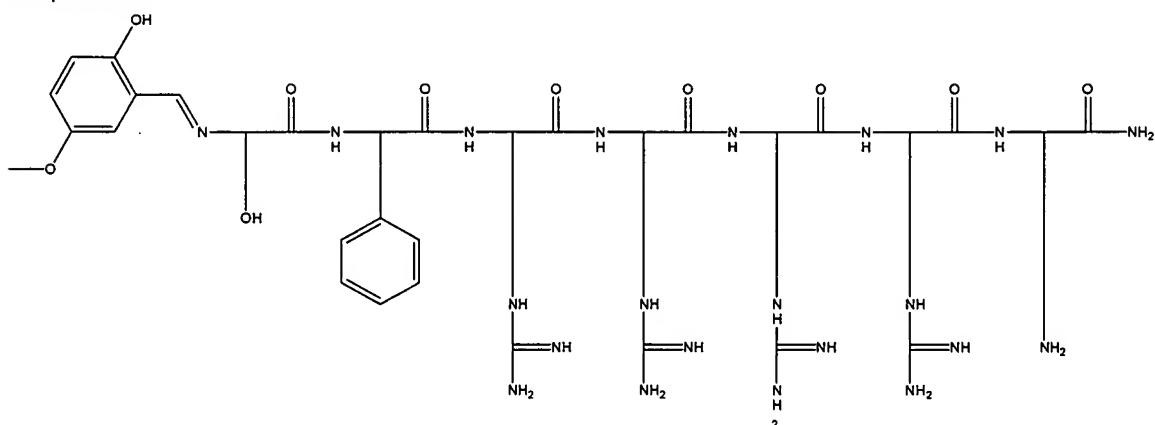


Compound 60

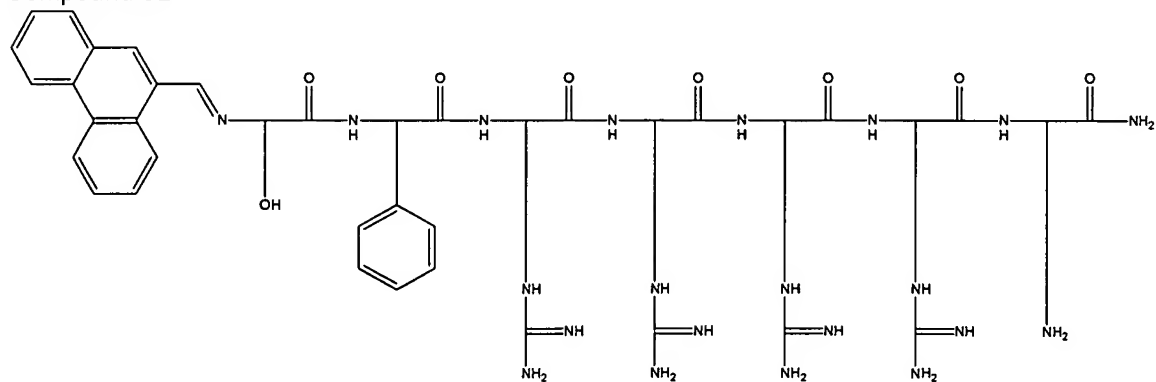
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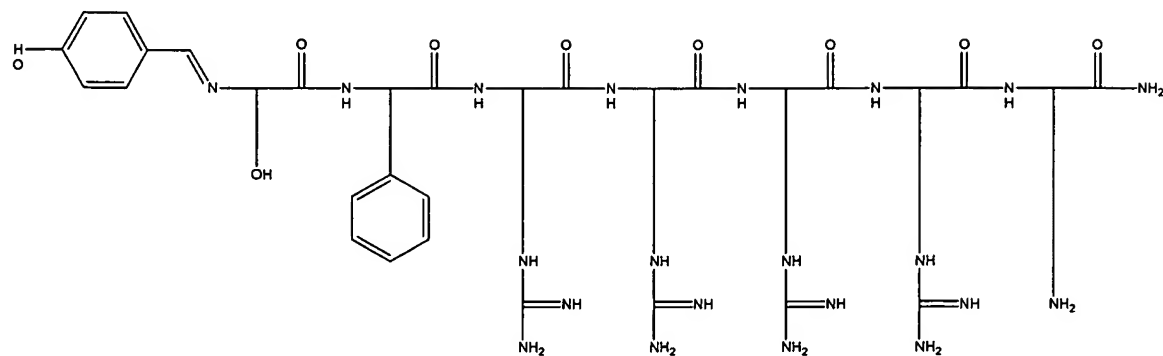
Compound 61



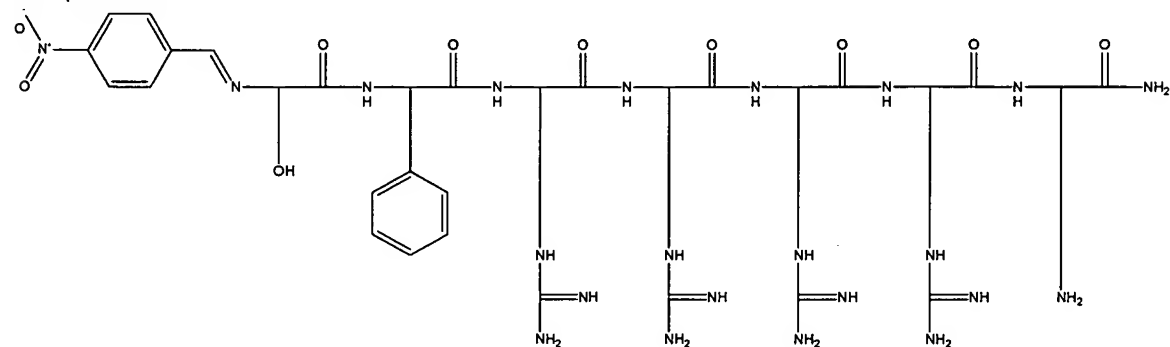
Compound 62



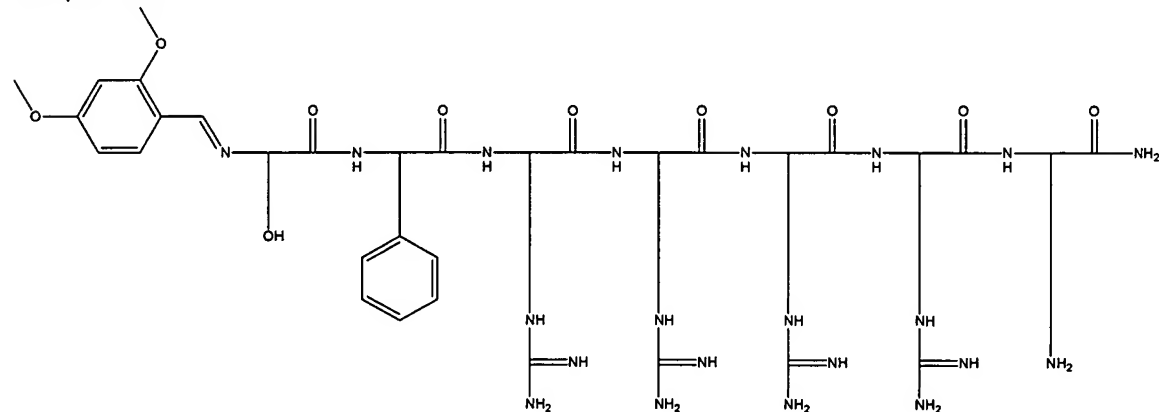
Compound 63



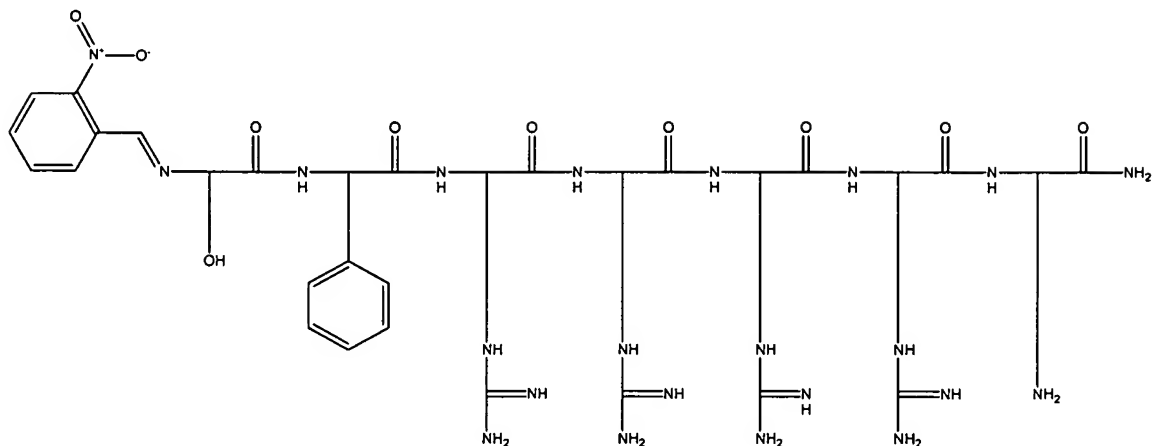
Compound 64



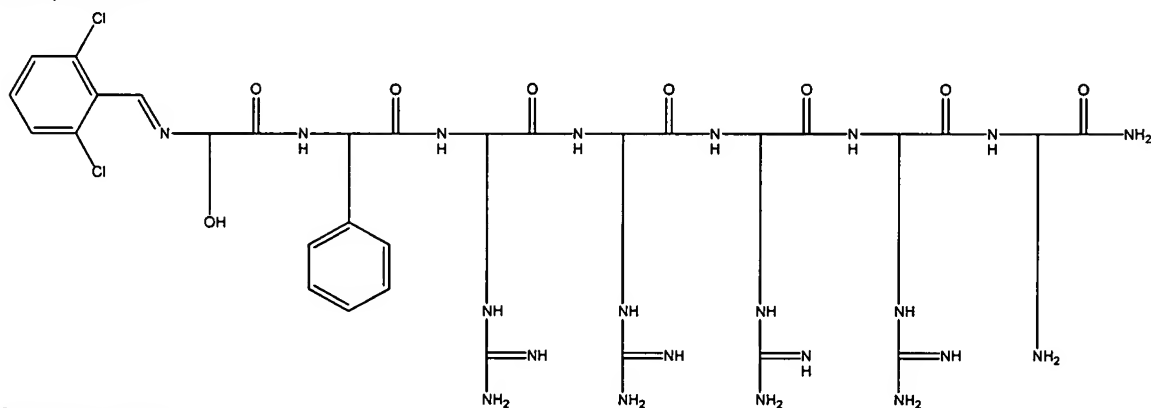
Compound 65



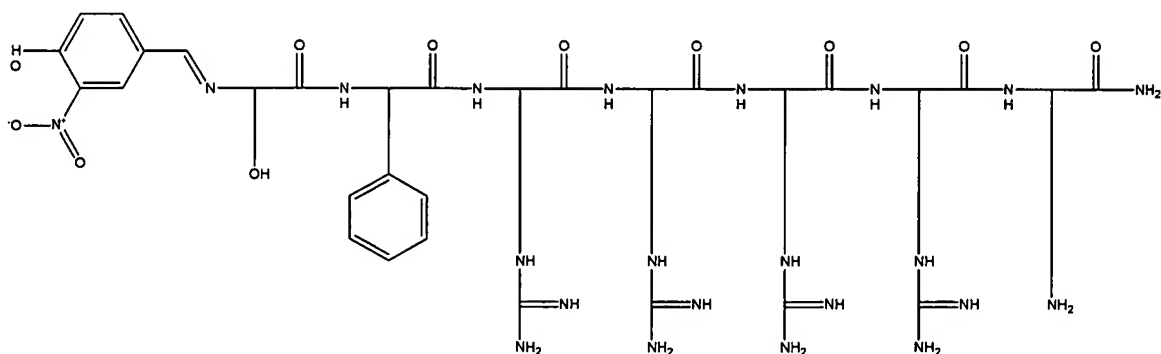
Compound 66



Compound 67

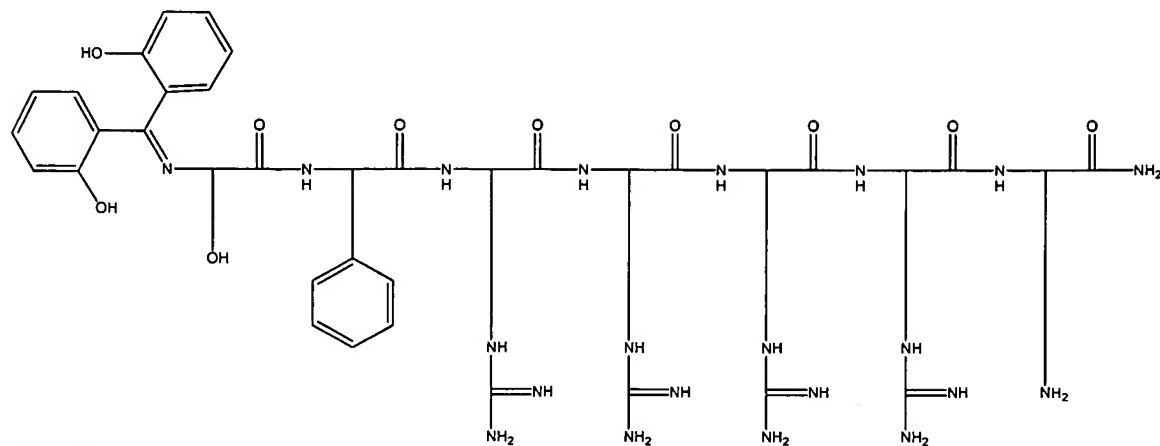


Compound 68

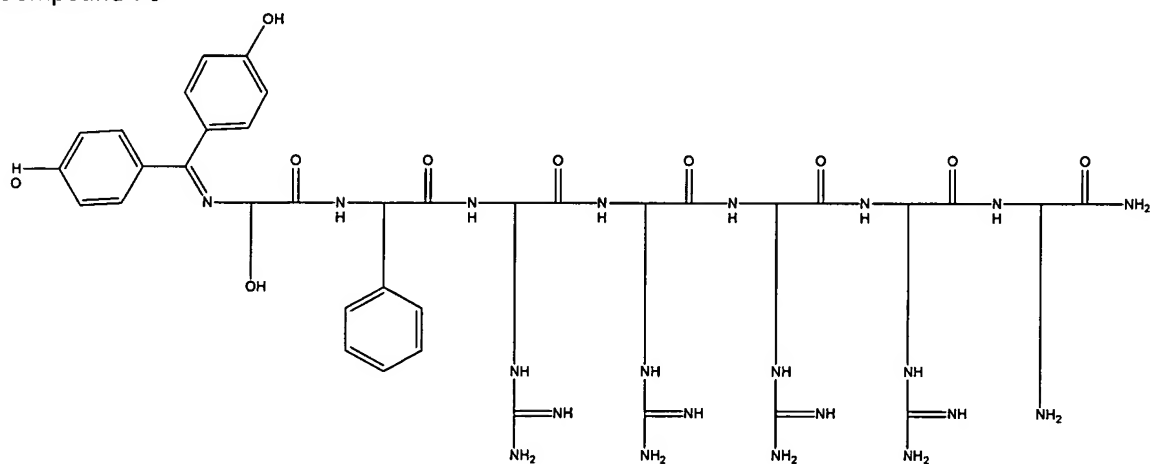


Compound 69

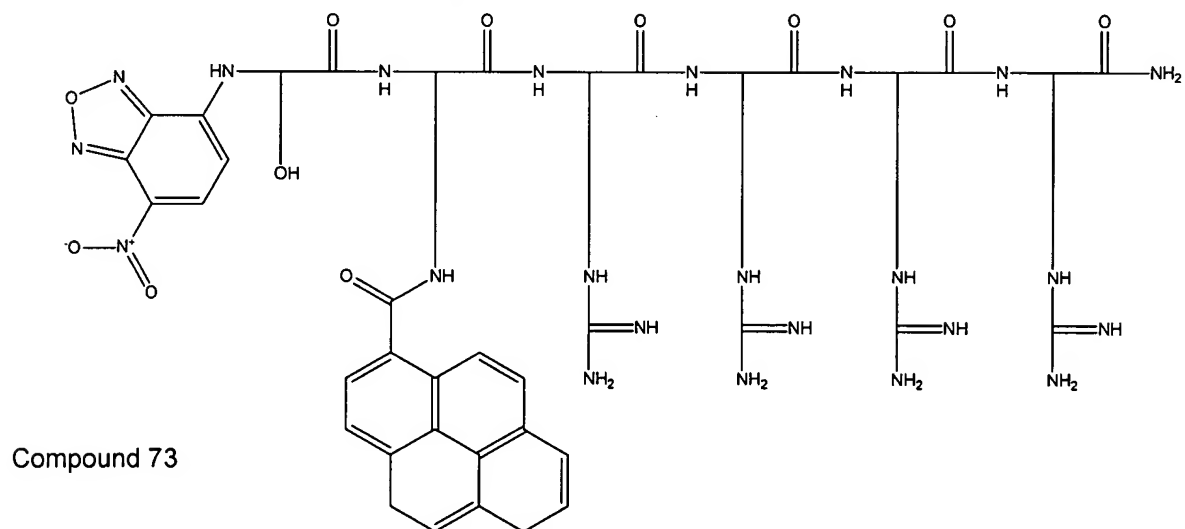
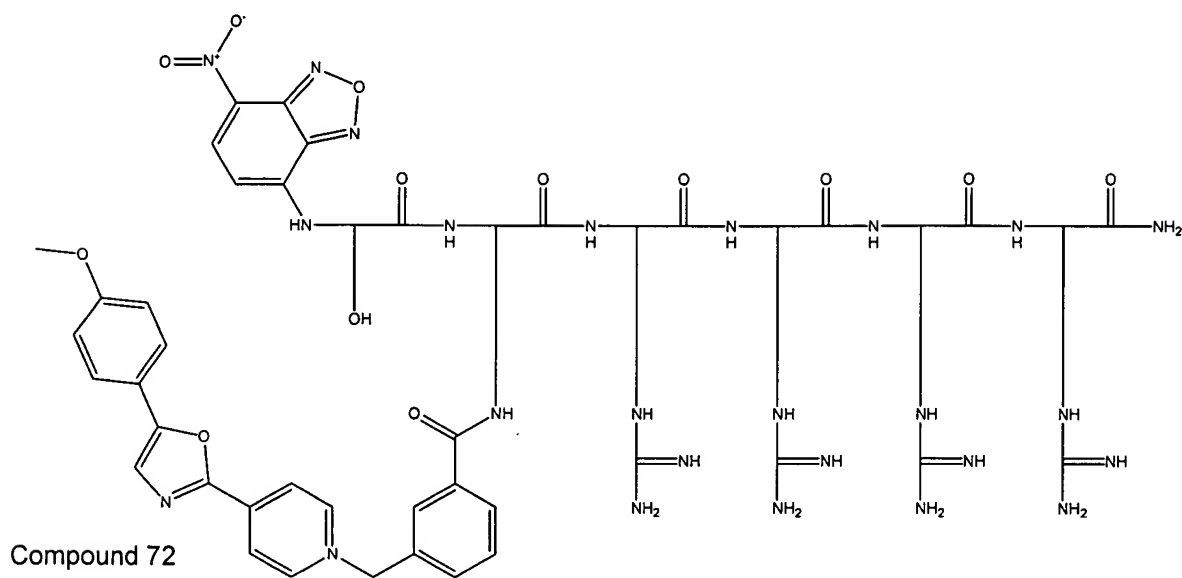
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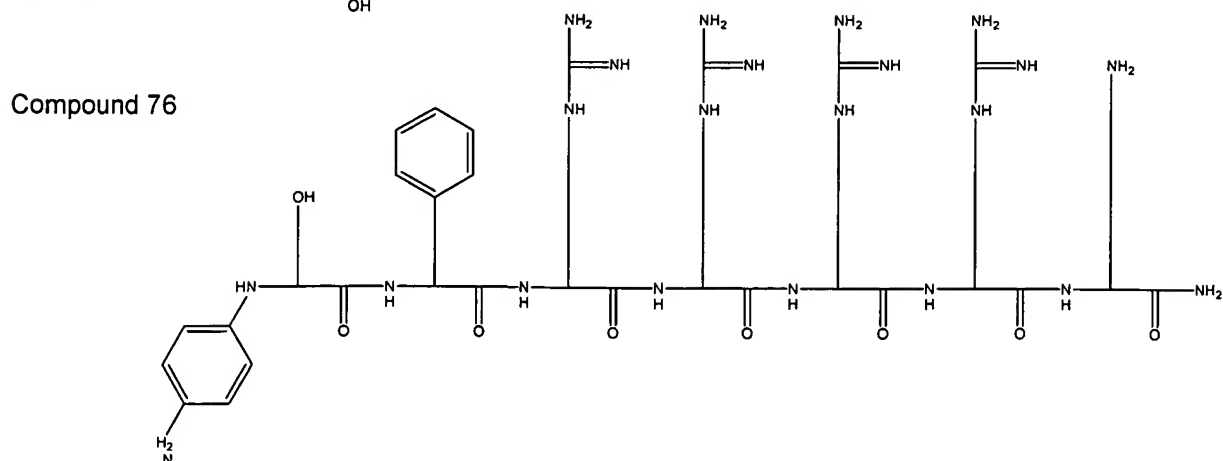
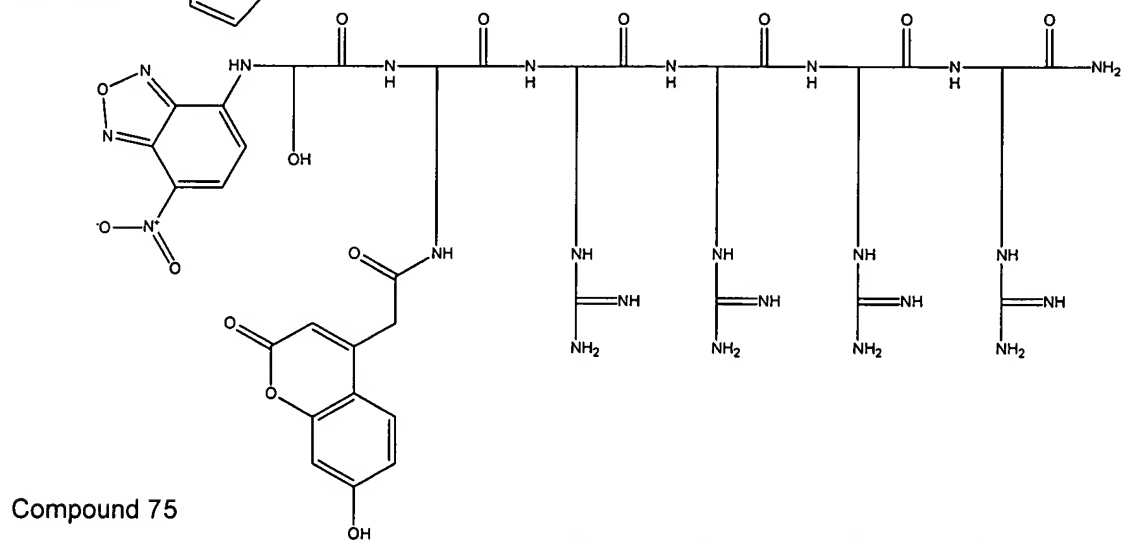
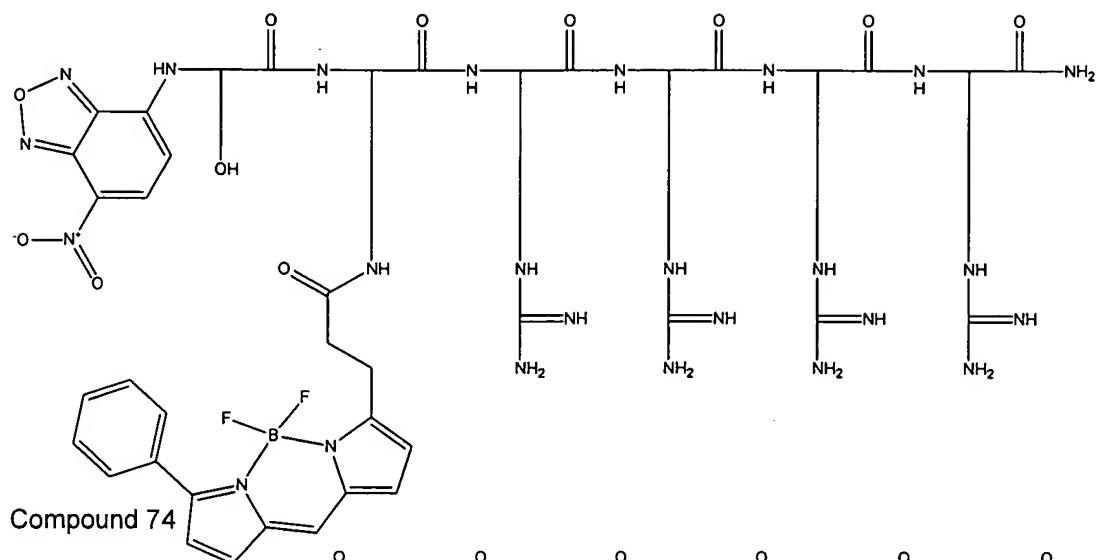


Compound 70

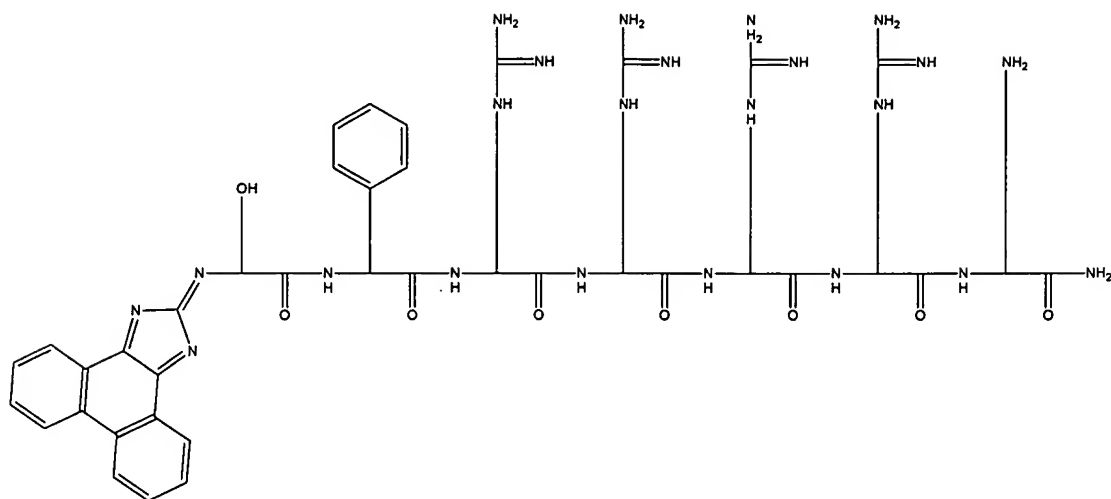


Compound 71

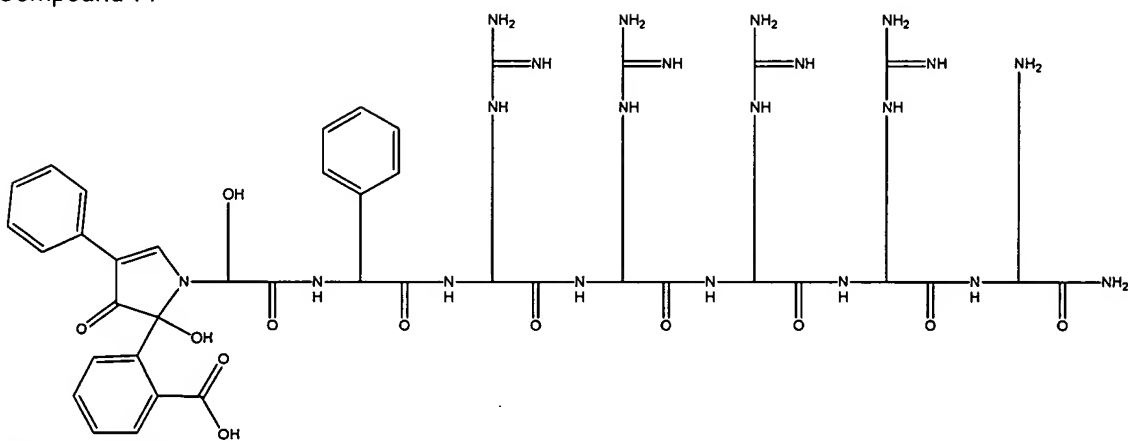




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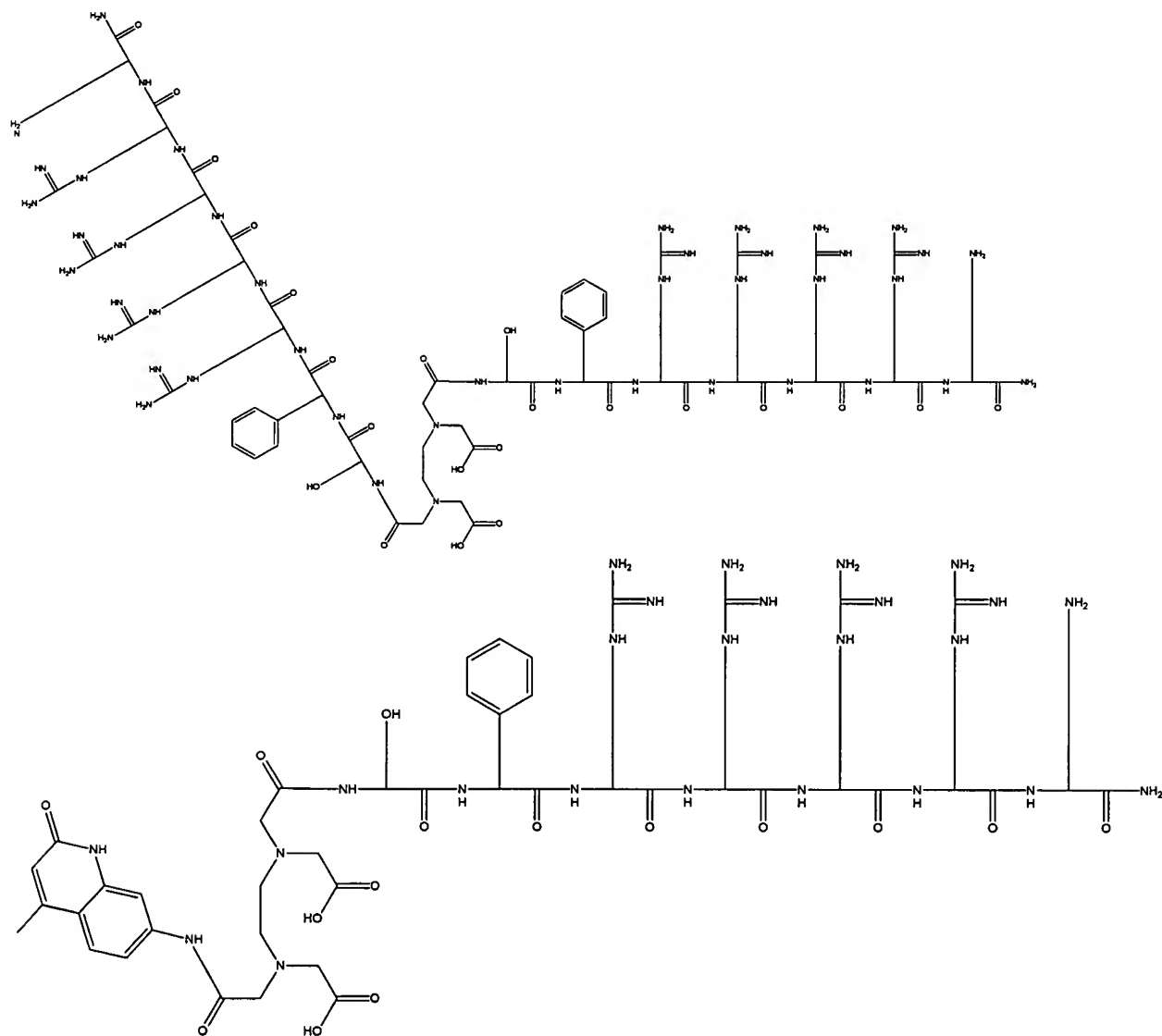
Compound 77



Compound 78

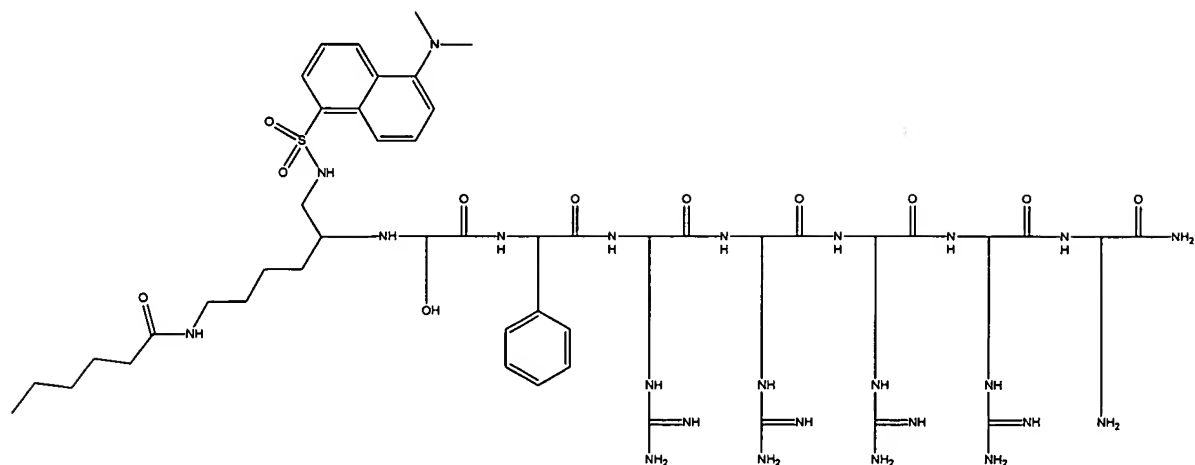
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Compound 79



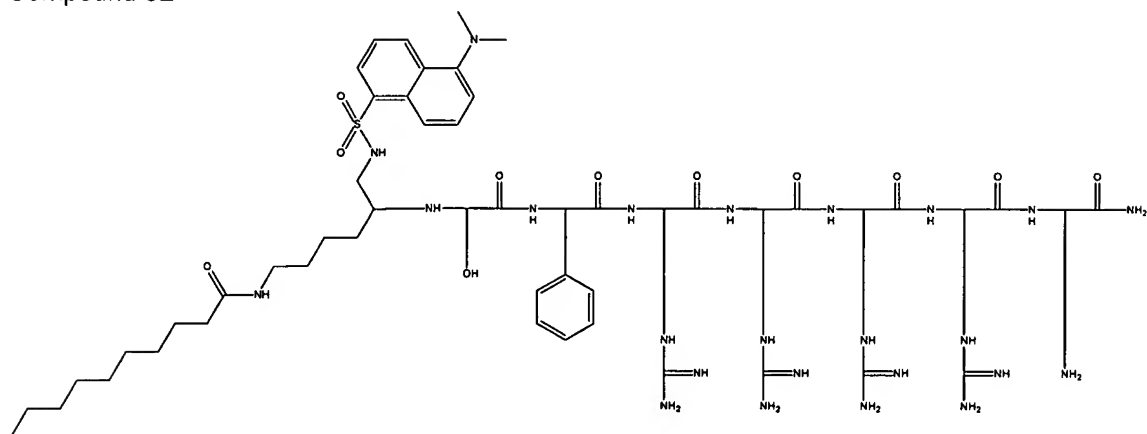
Compound 80

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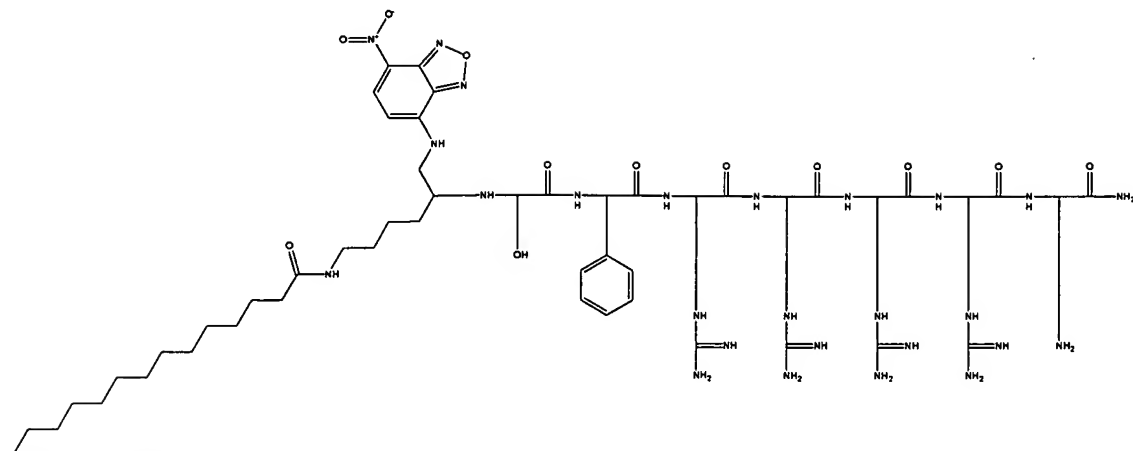


Compound 81

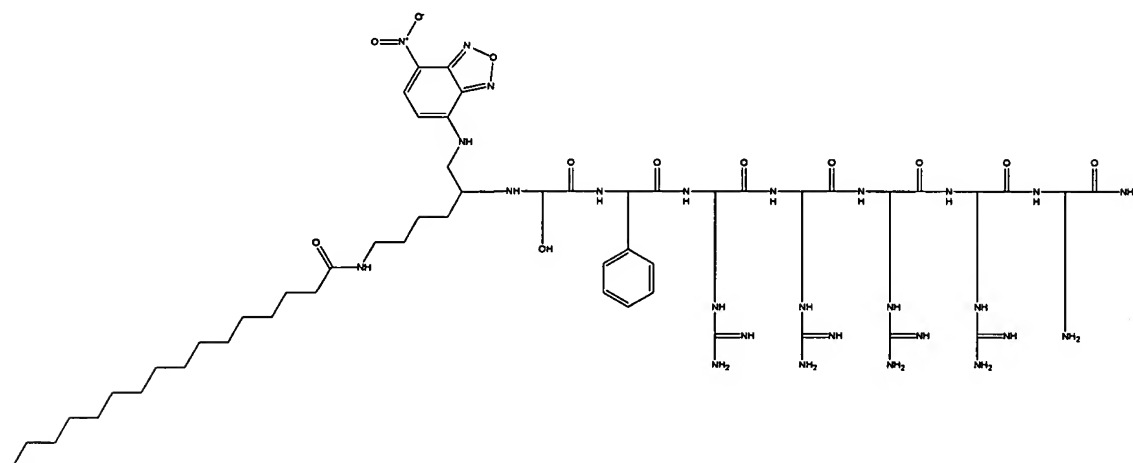
Compound 82



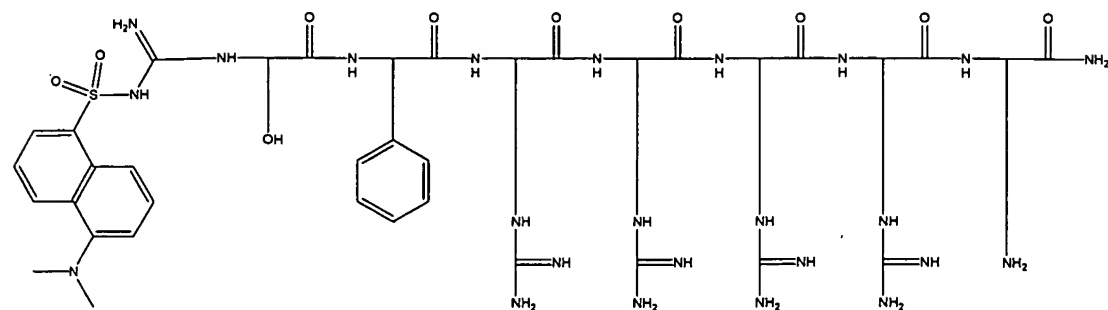
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Compound 83

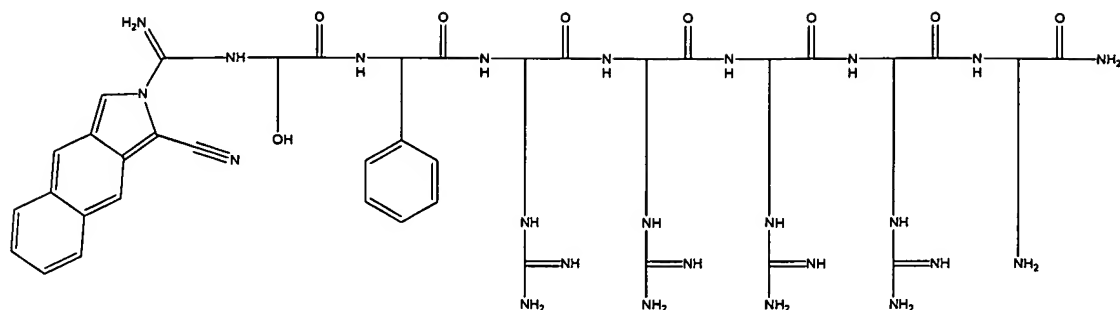


Compound 84

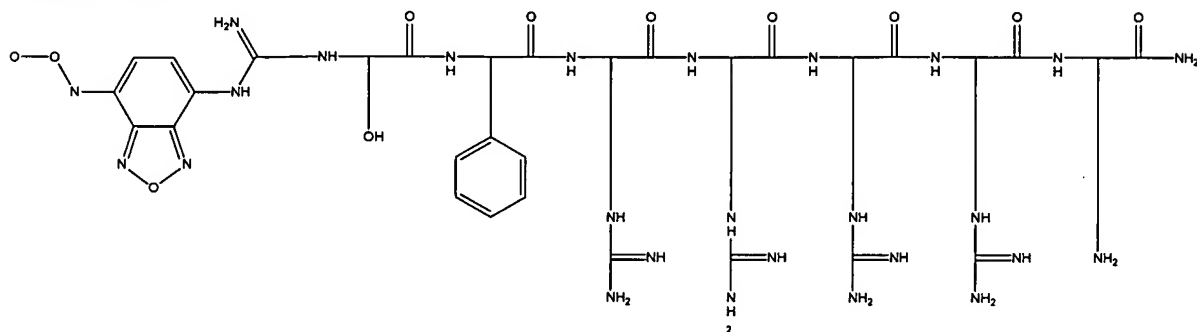


Compound 85

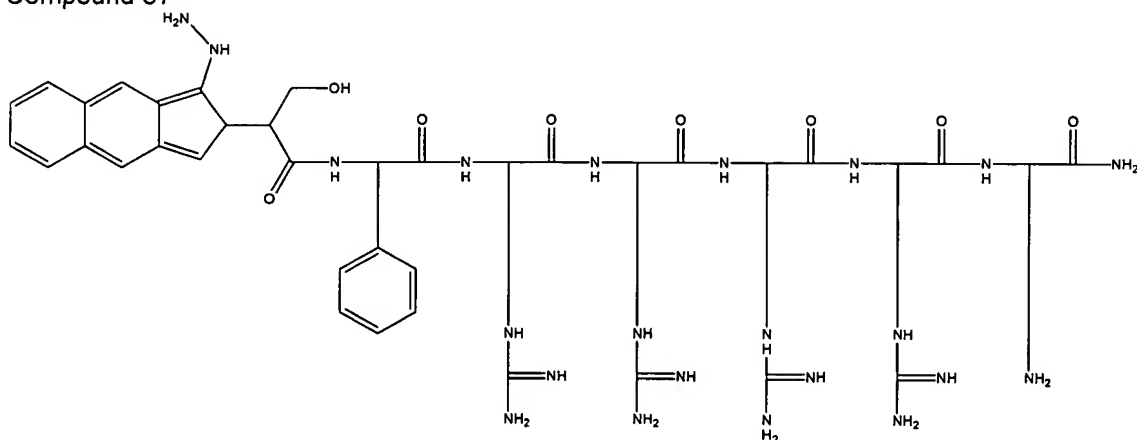
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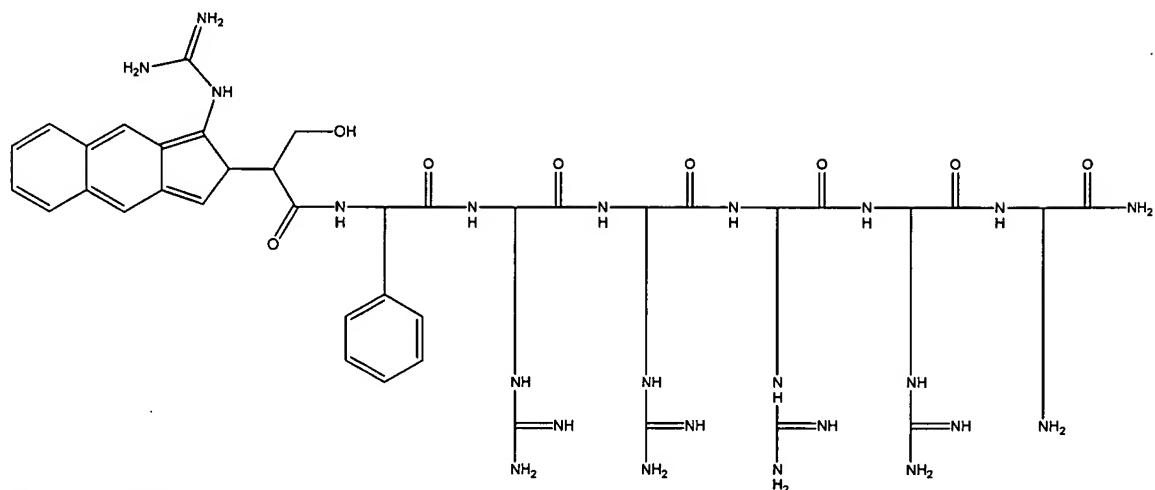
Compound 86



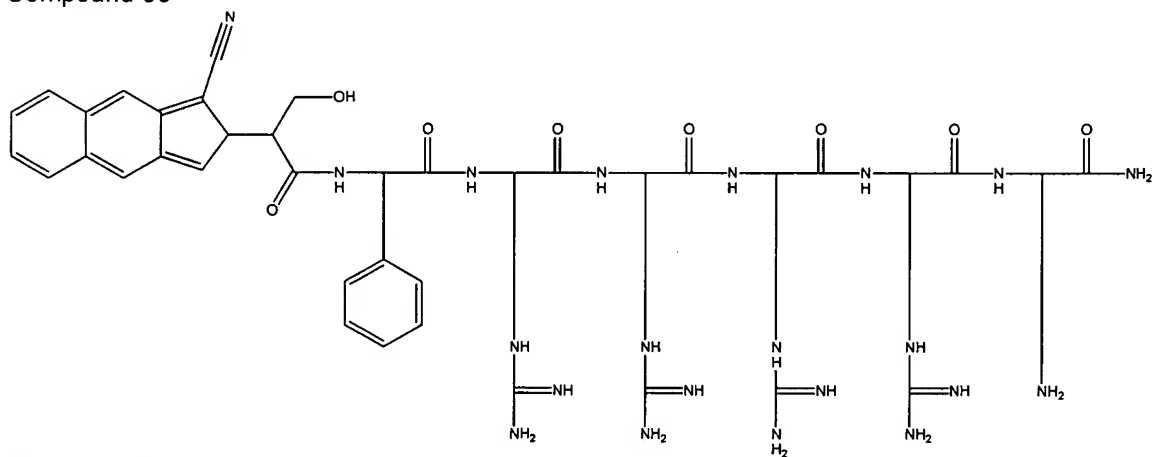
Compound 87



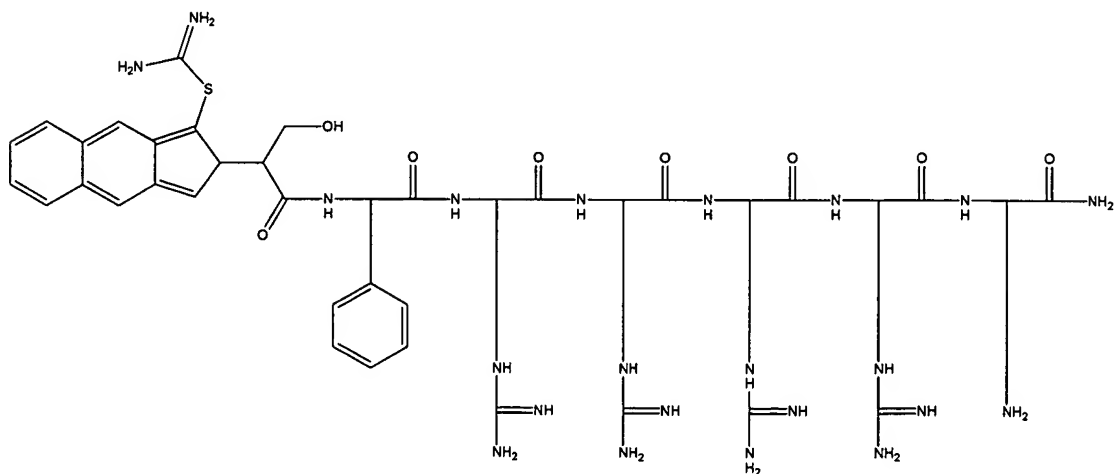
Compound 88



Compound 89

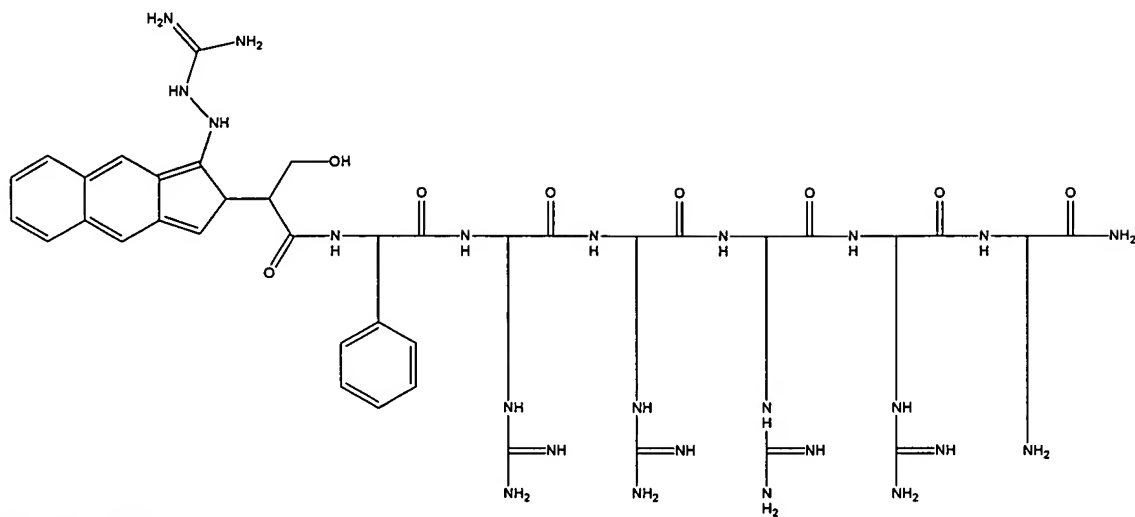


Compound 90

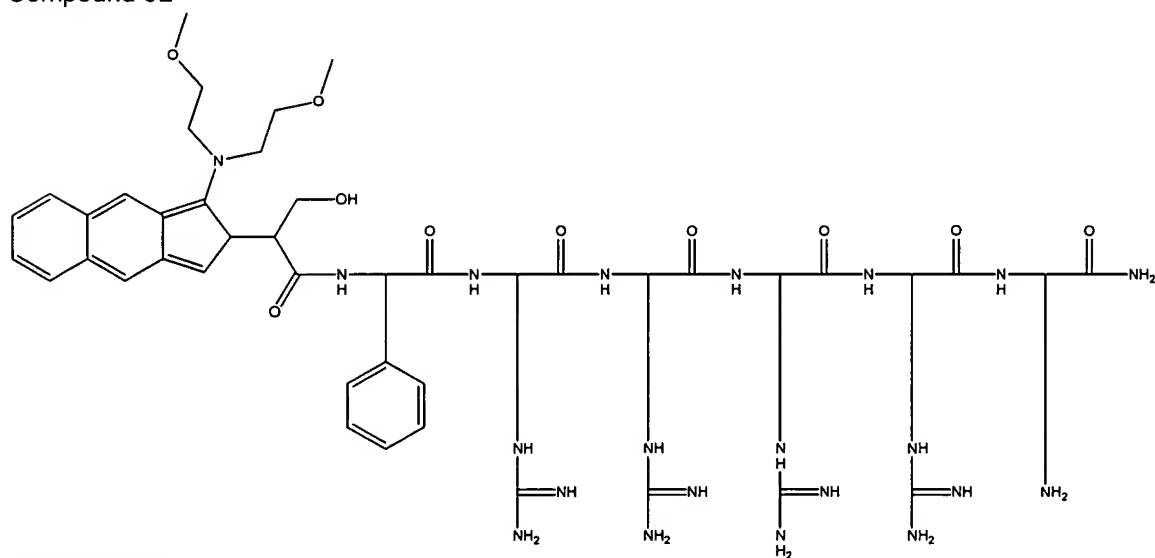


Compound 91

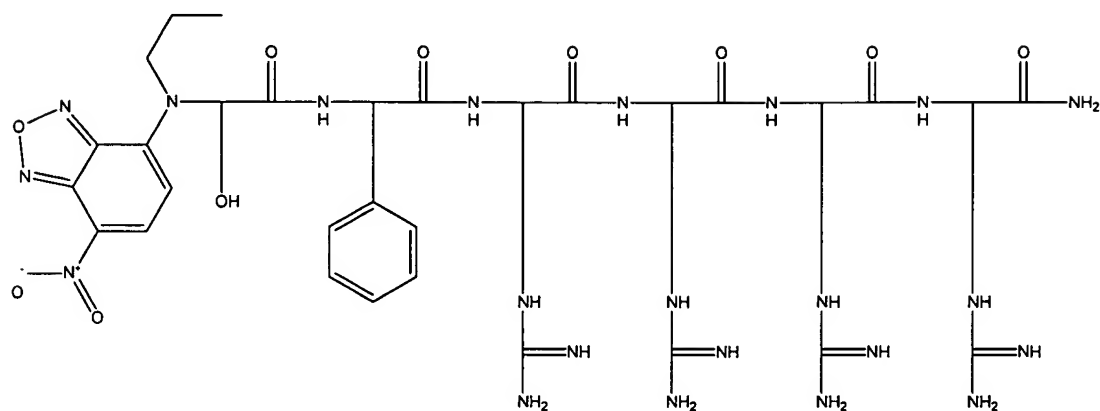
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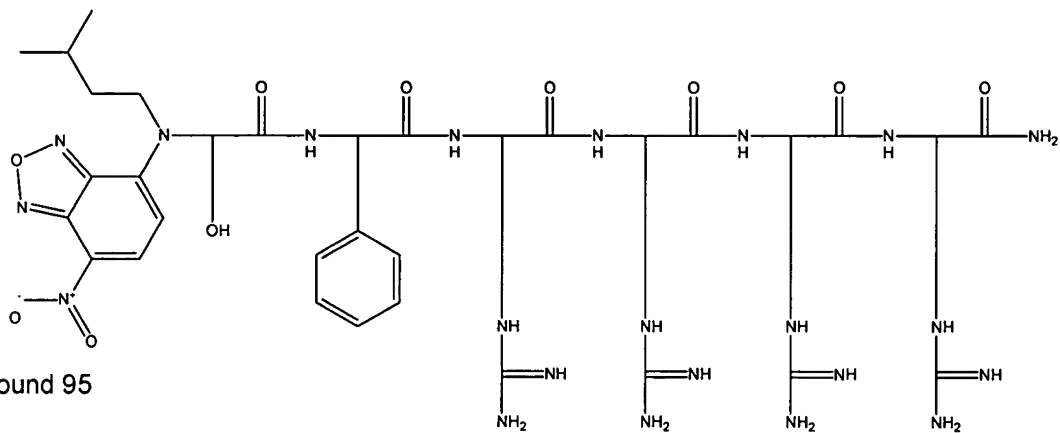
Compound 92



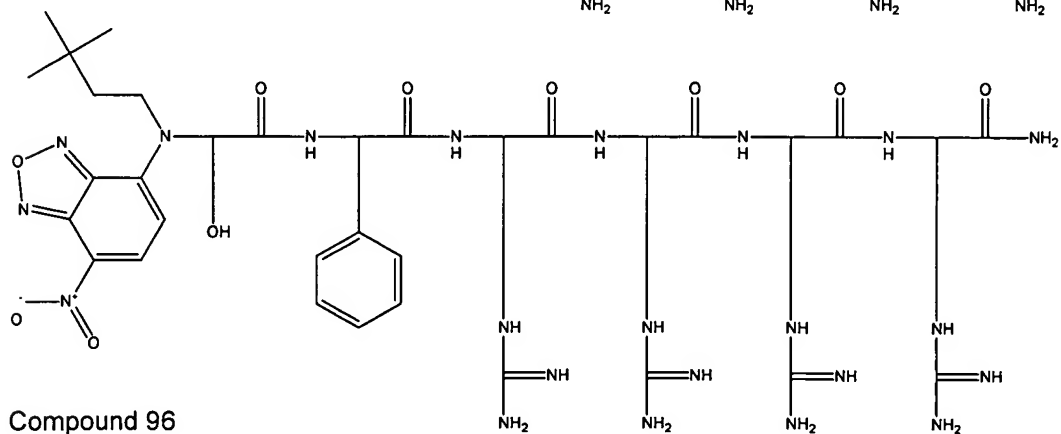
Compound 93



Compound 94

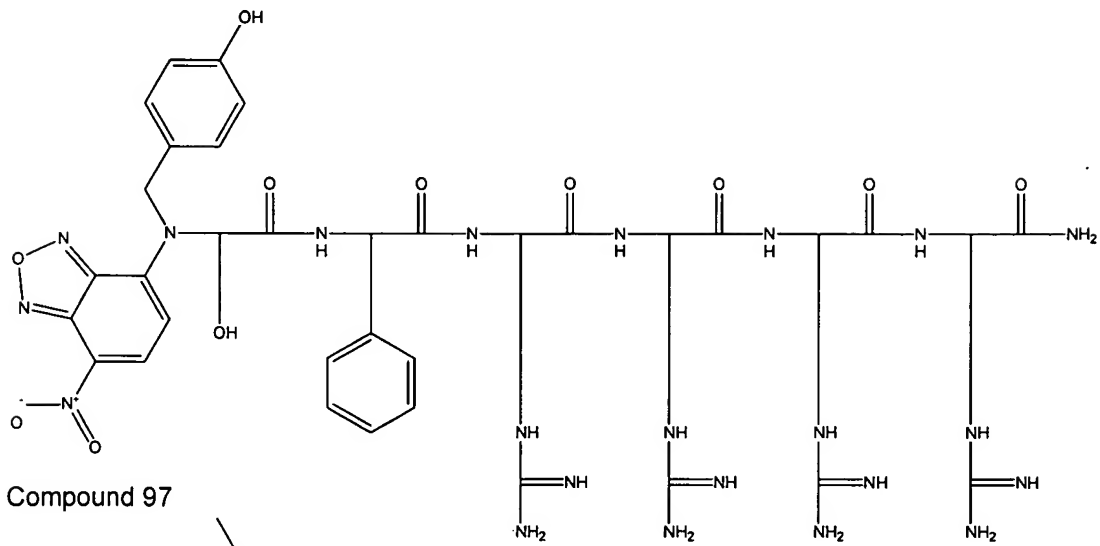


Compound 95

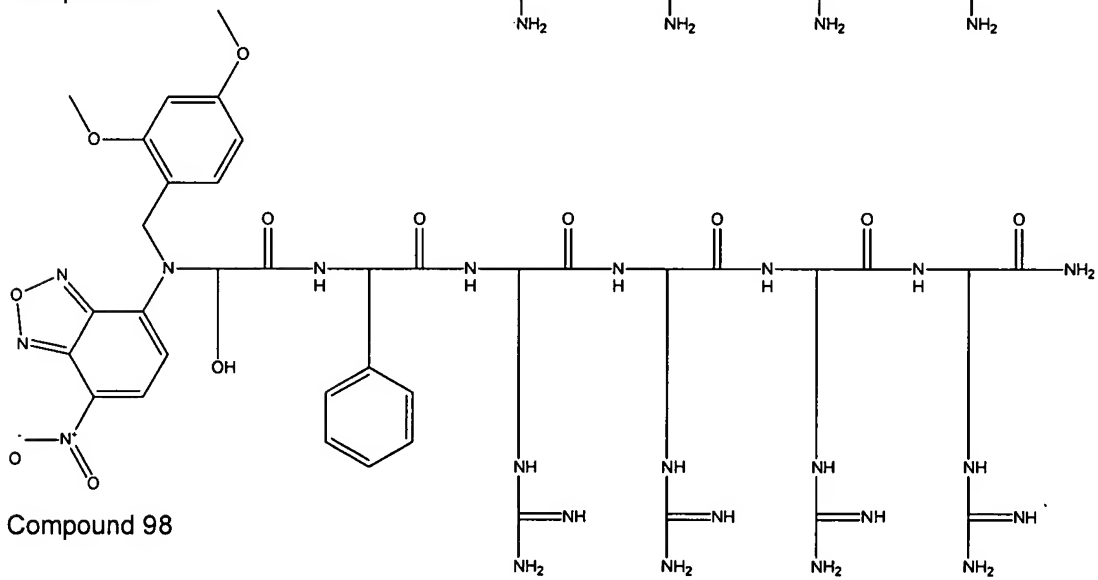


Compound 96

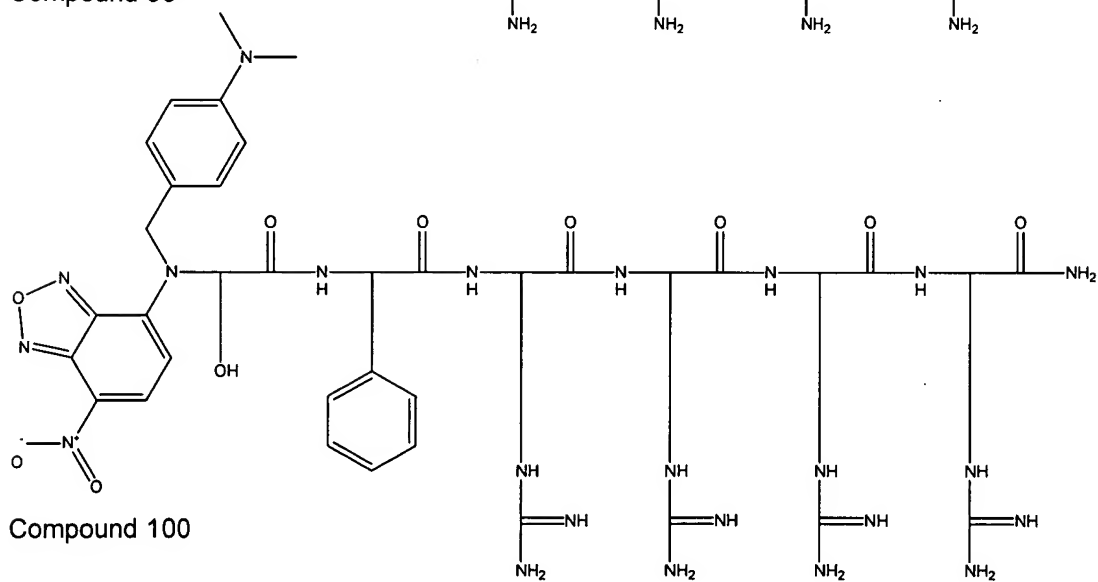
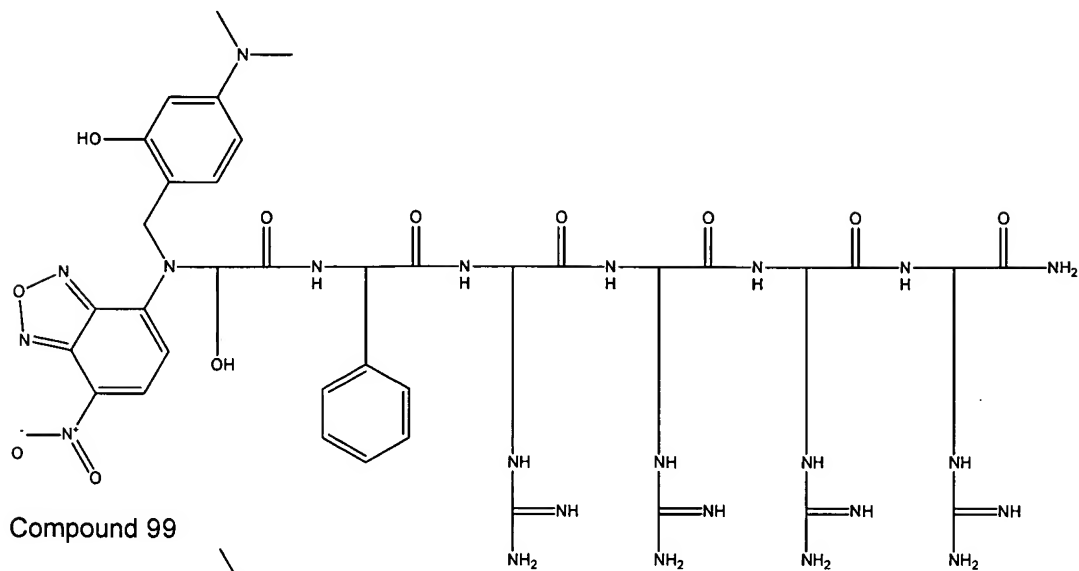
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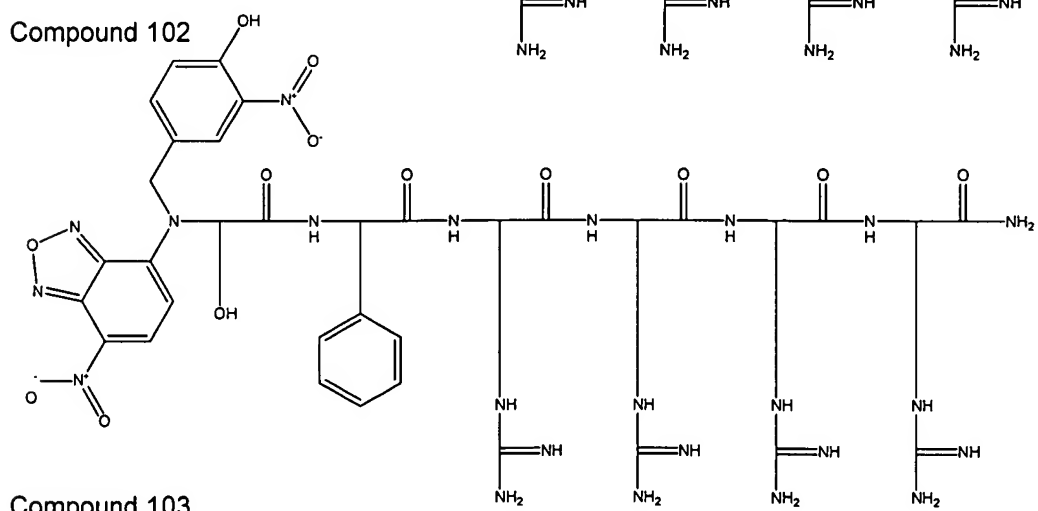
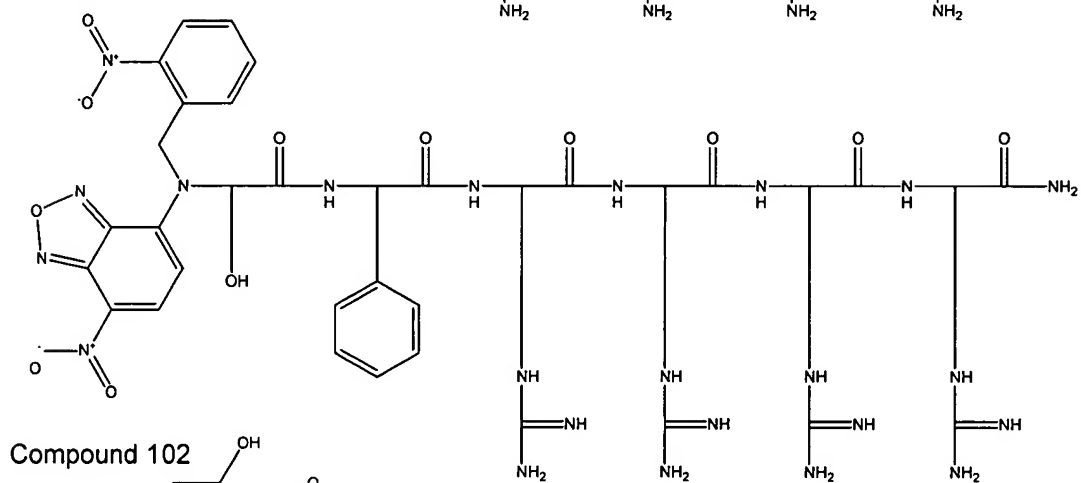
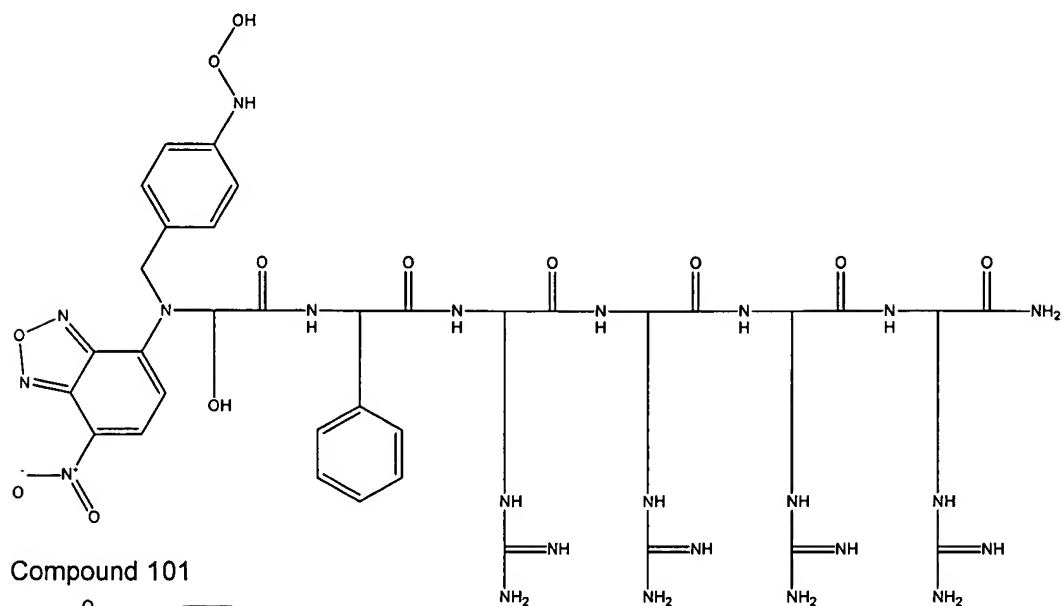


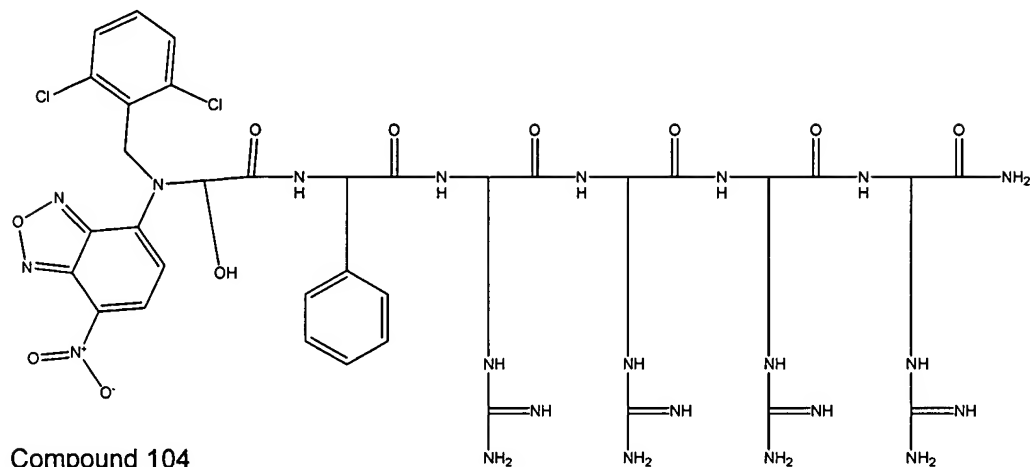
Compound 97



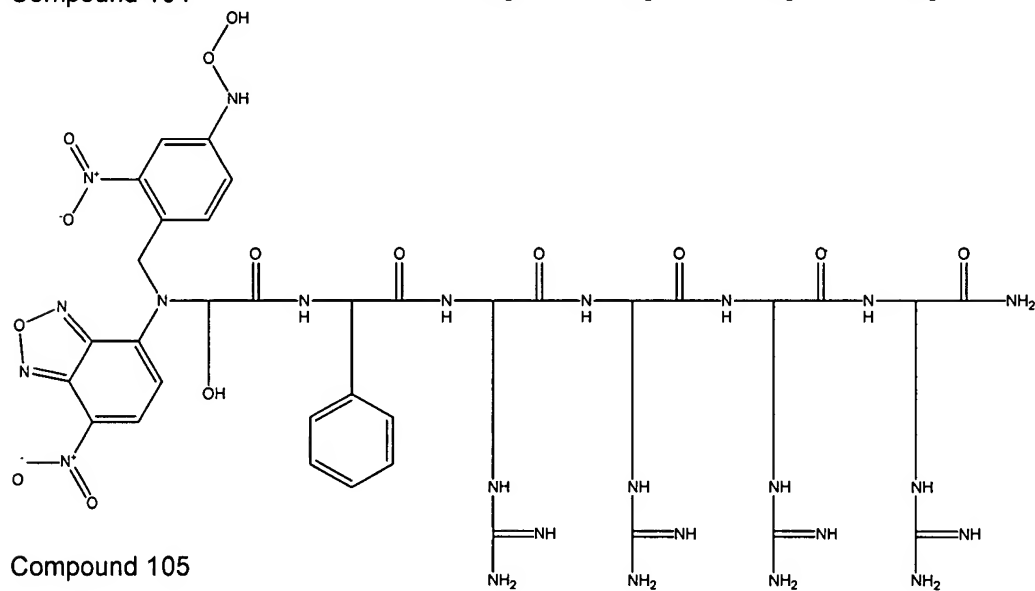
Compound 98







Compound 104



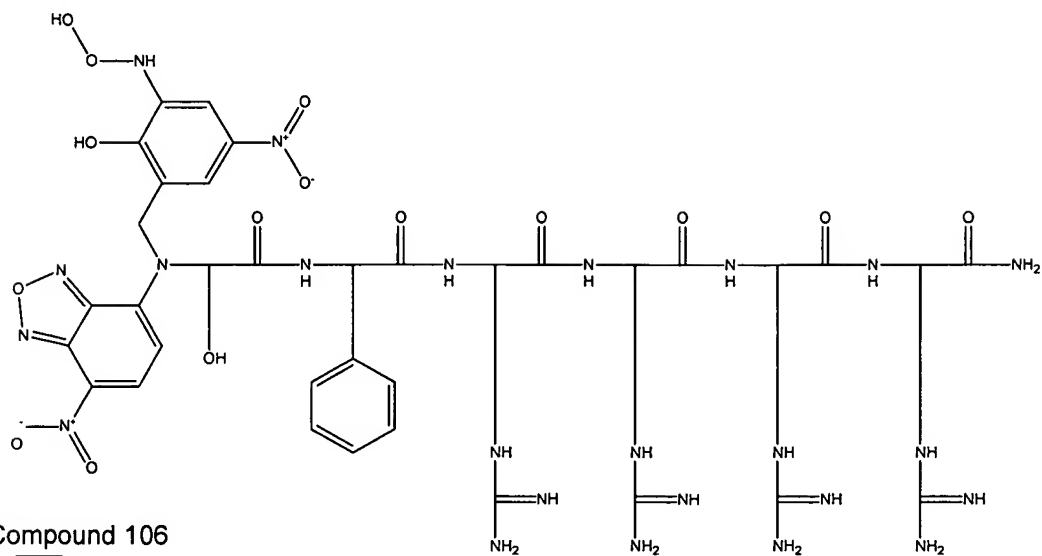
Compound 105

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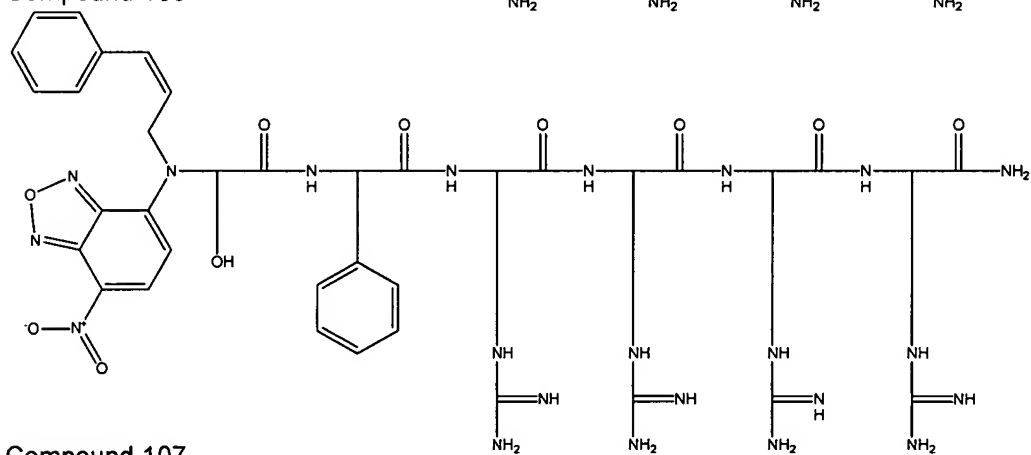
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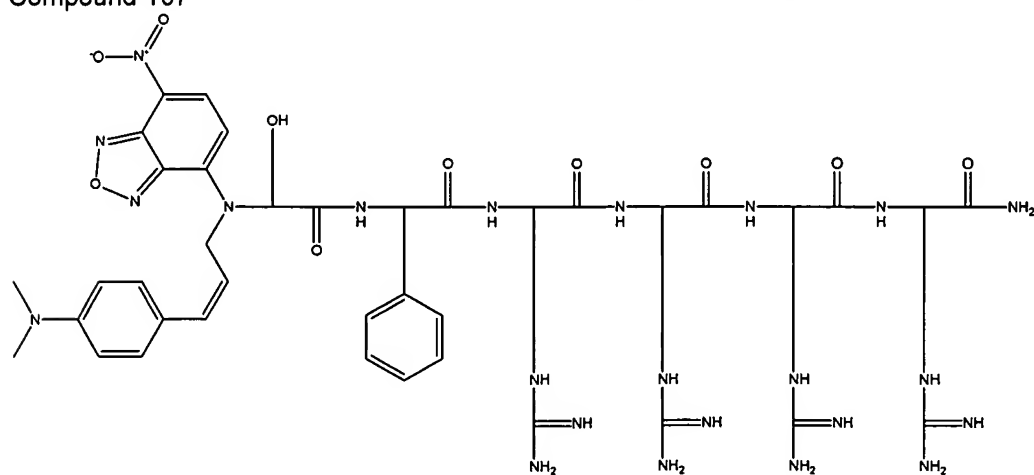
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Compound 106

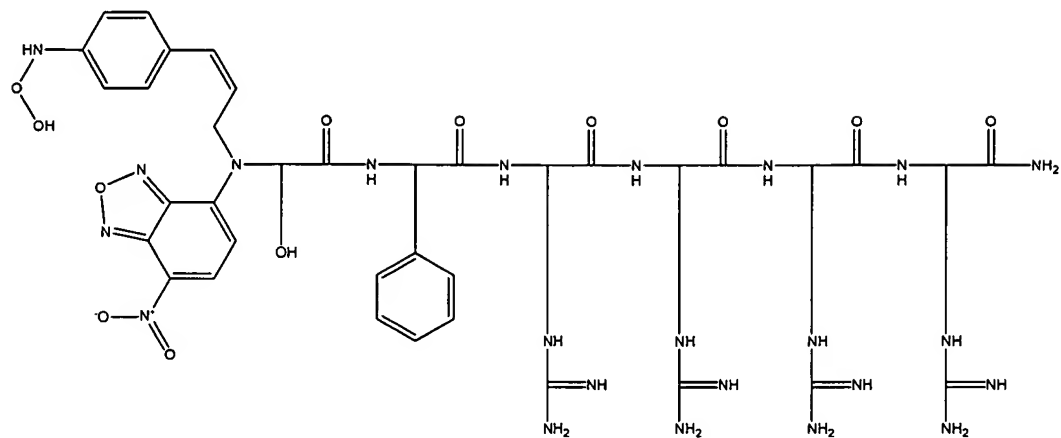


Compound 107

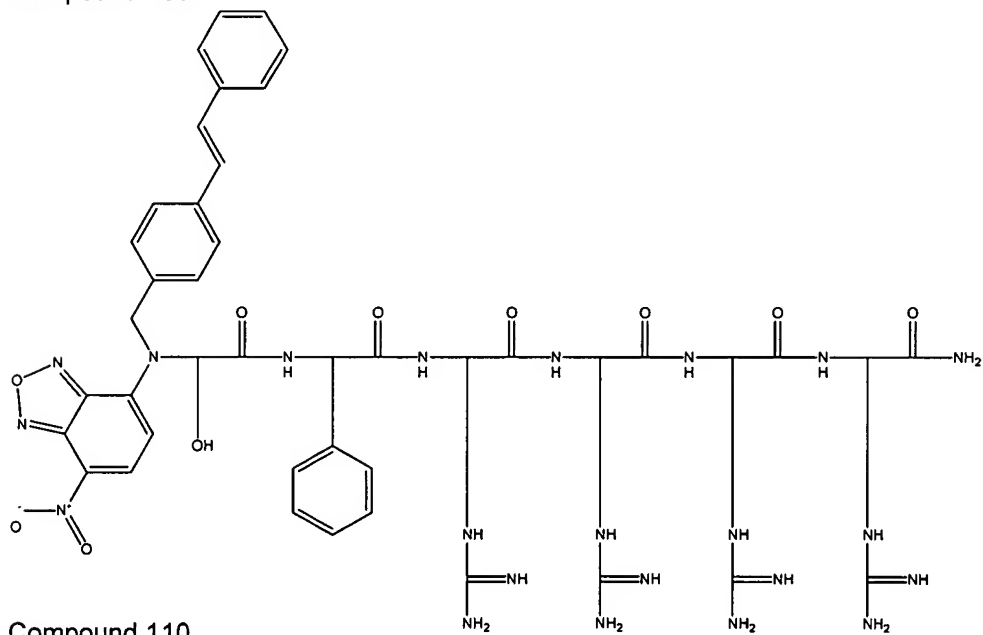


Compound 108

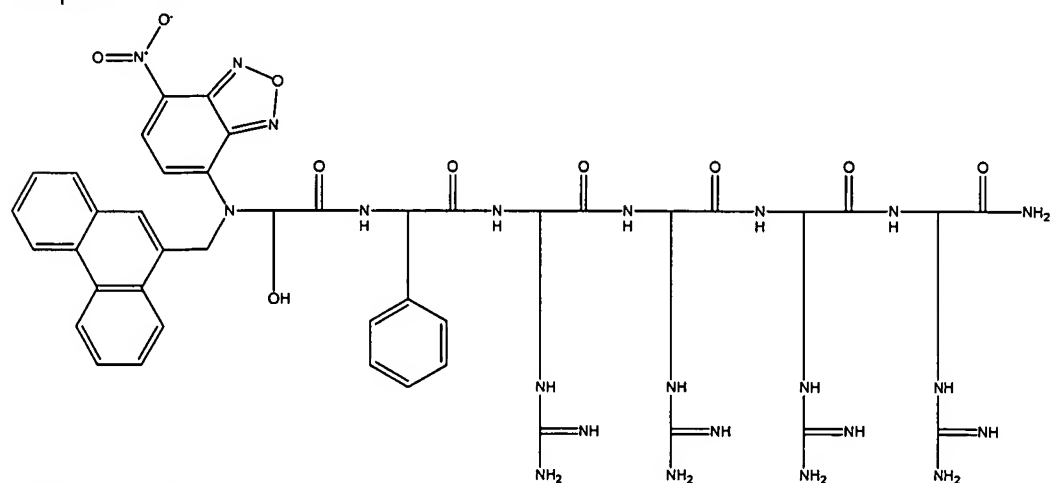
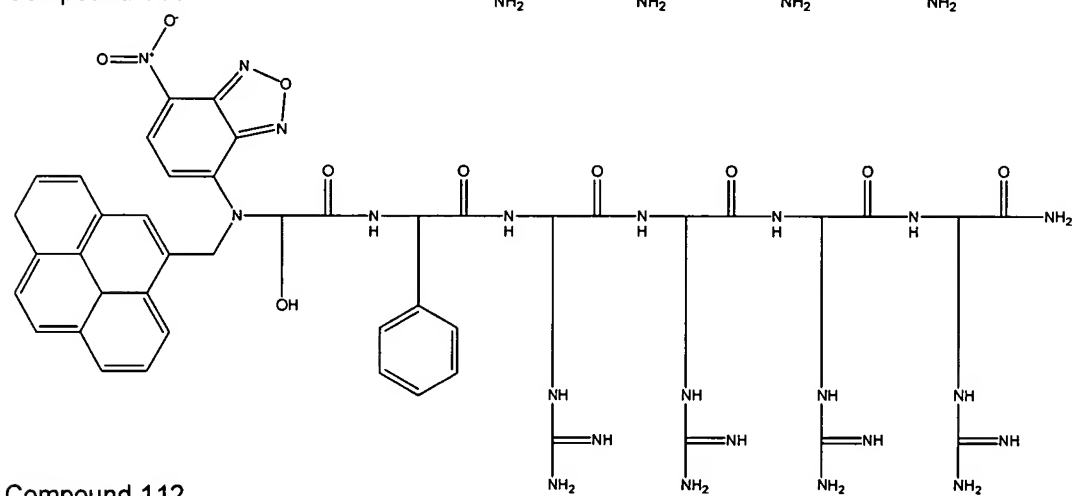
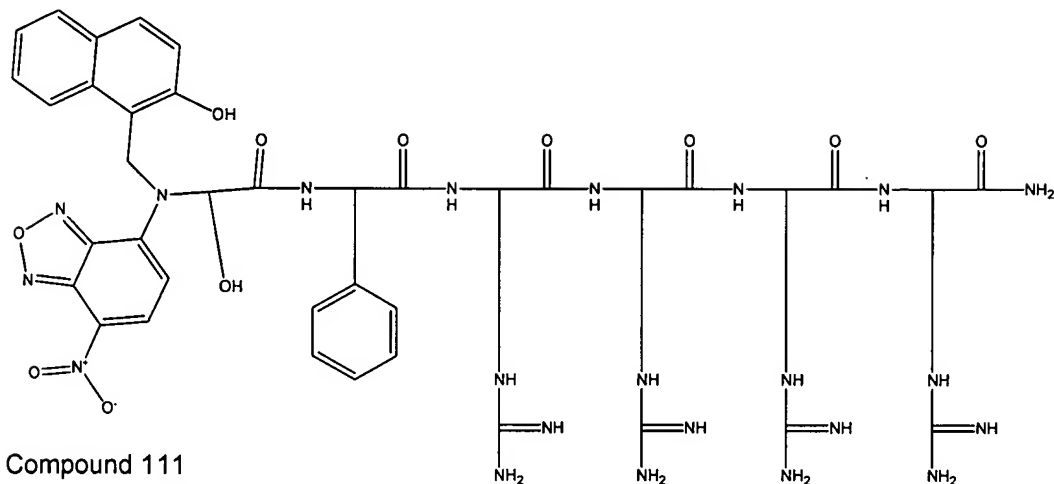
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Compound 109



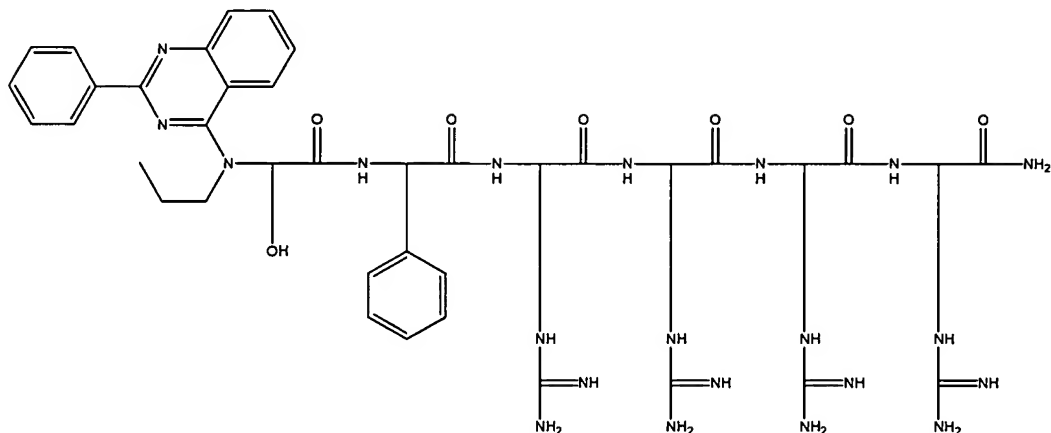
Compound 110



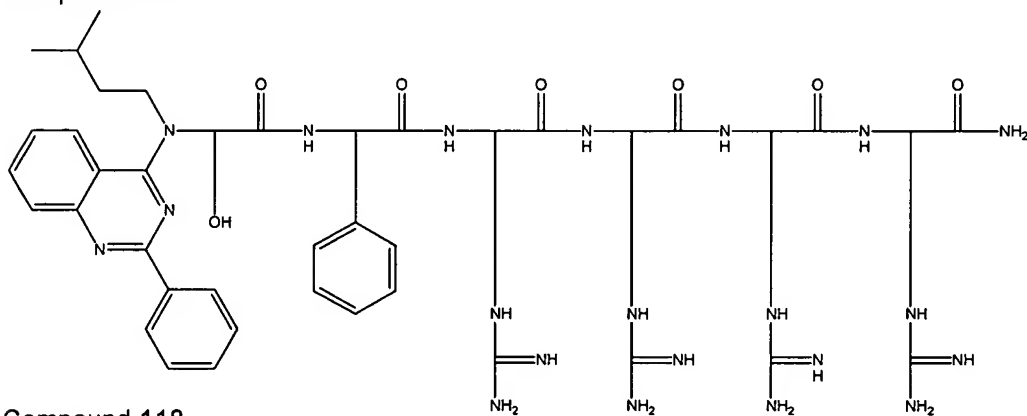
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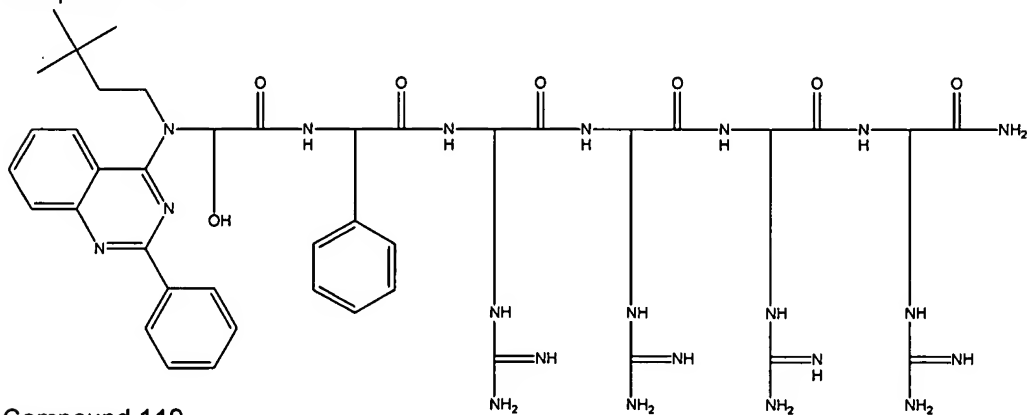
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Compound 117

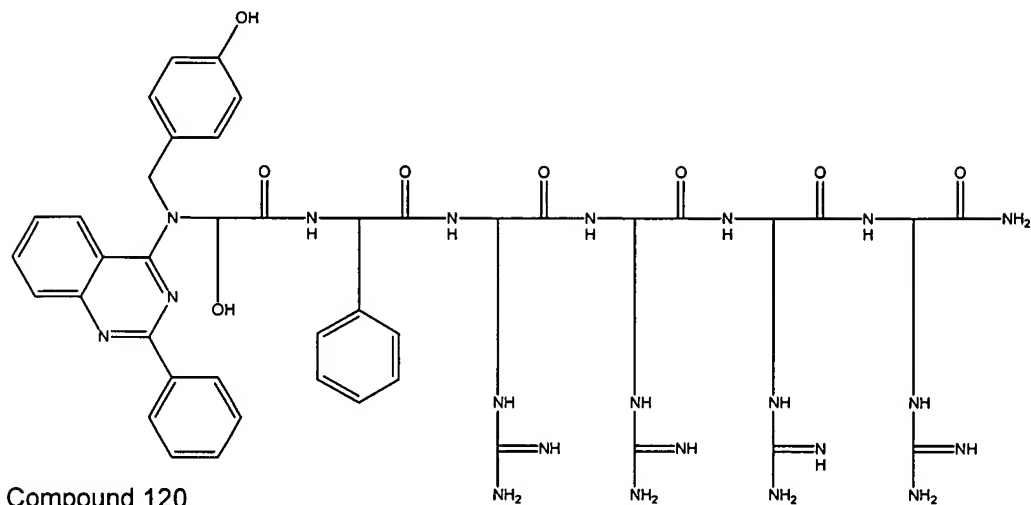


Compound 118

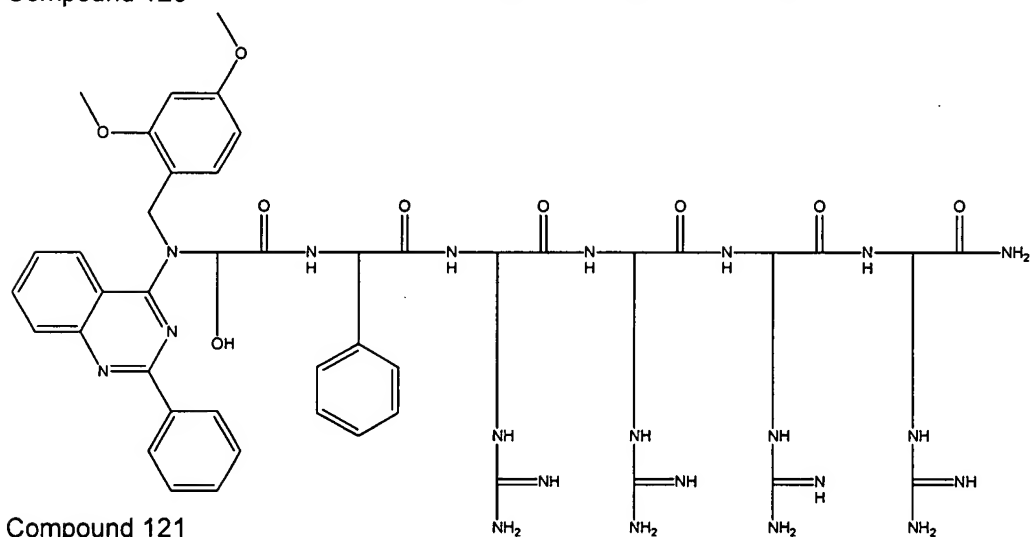


Compound 119

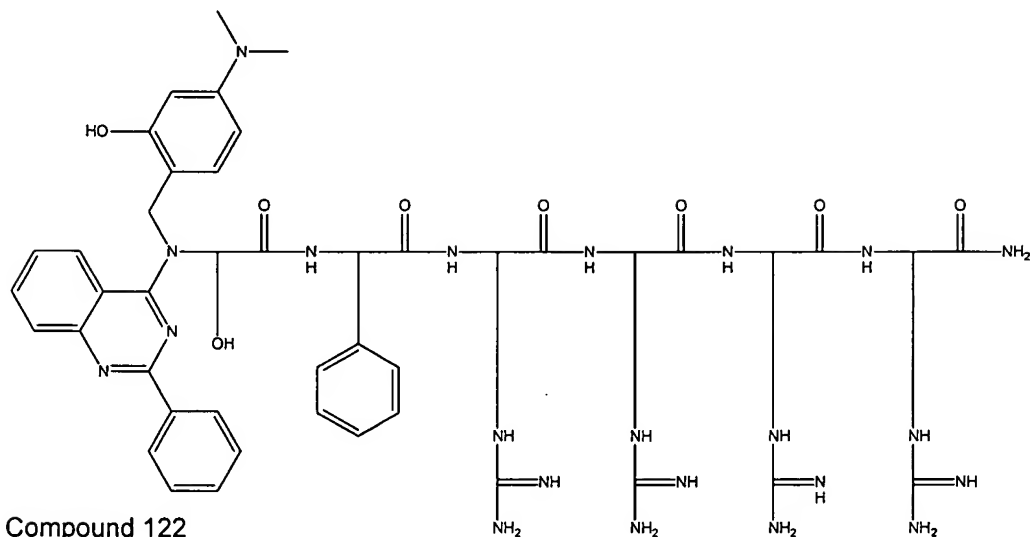
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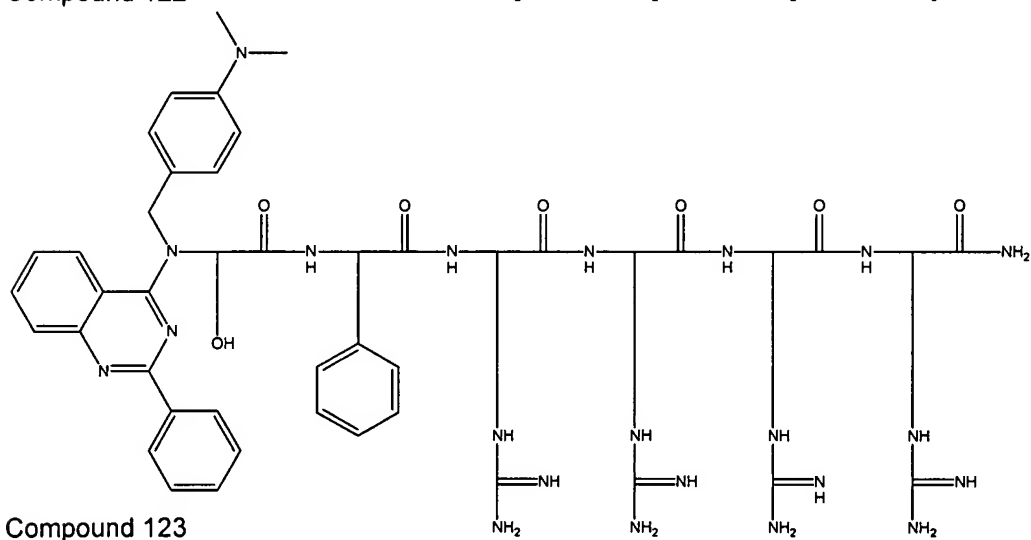
Compound 120



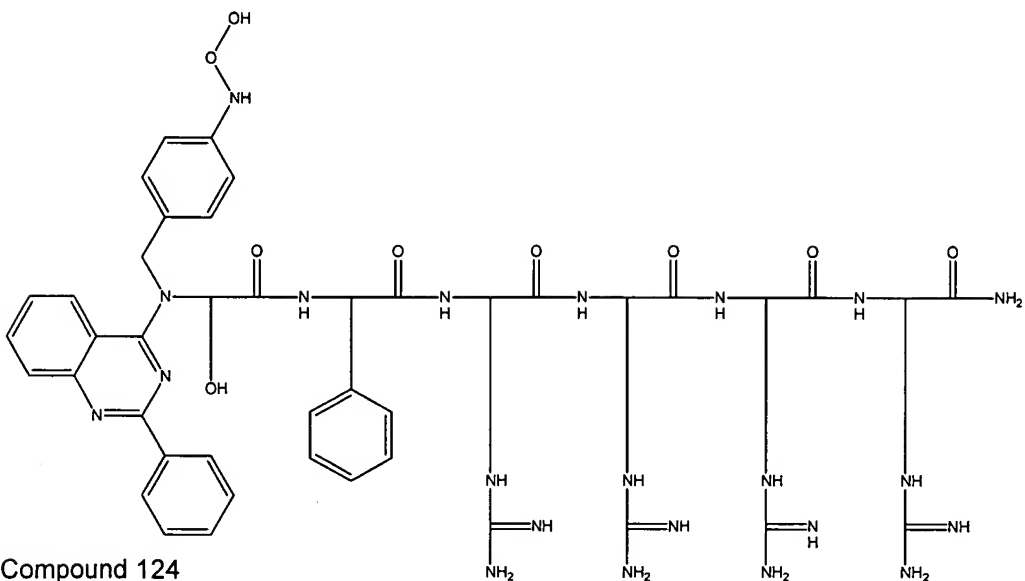
Compound 121



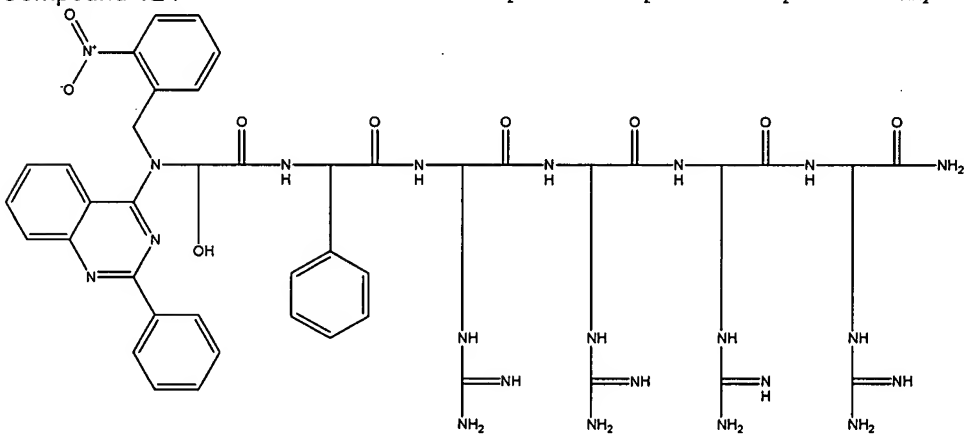
Compound 122



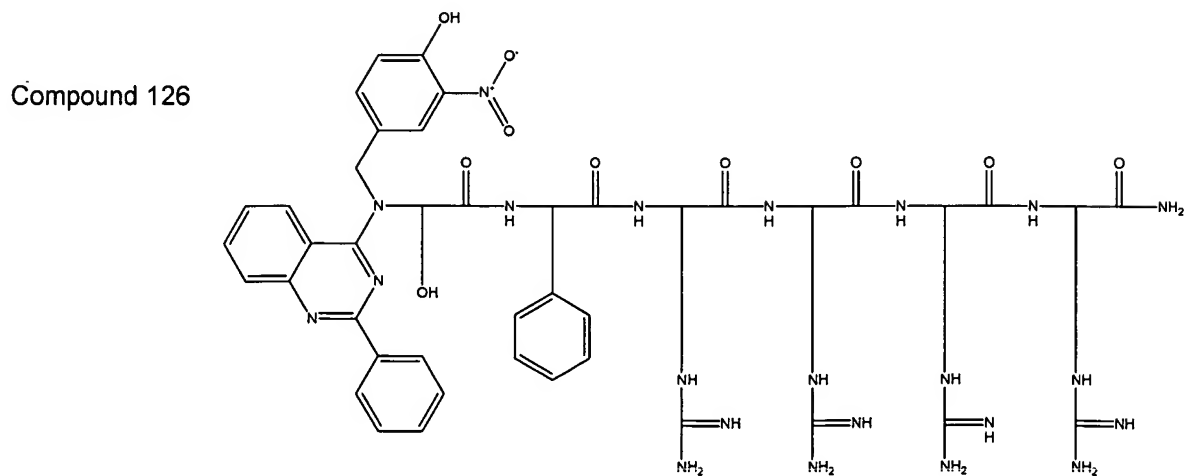
Compound 123



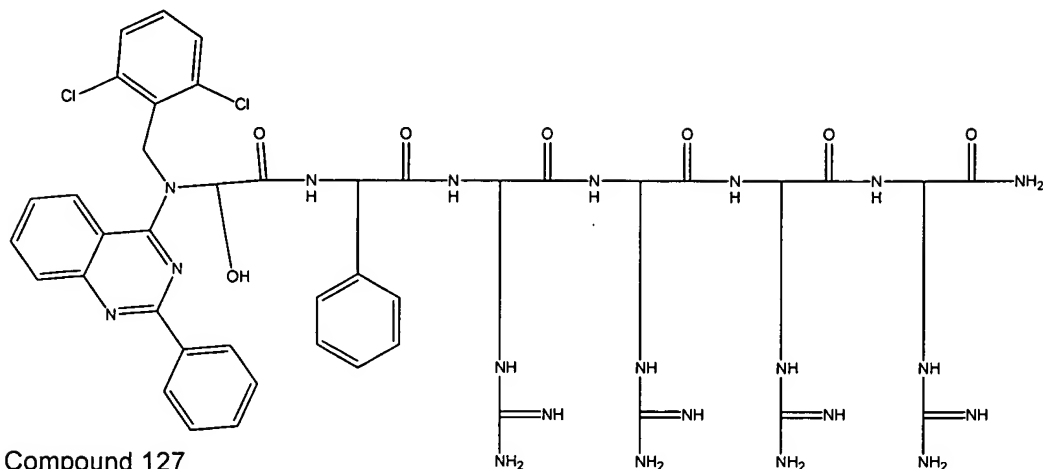
Compound 124



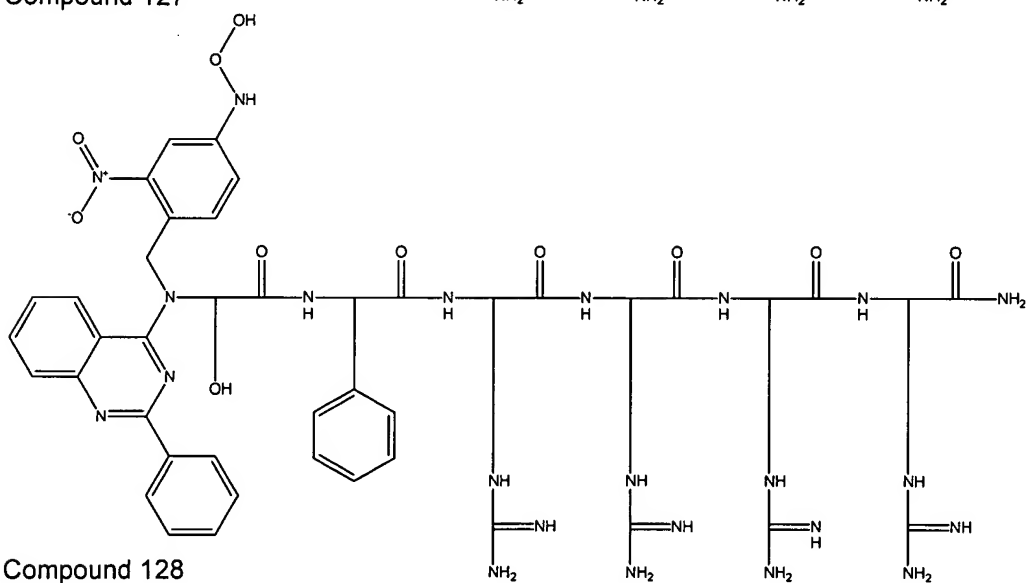
Compound 125



Compound 126

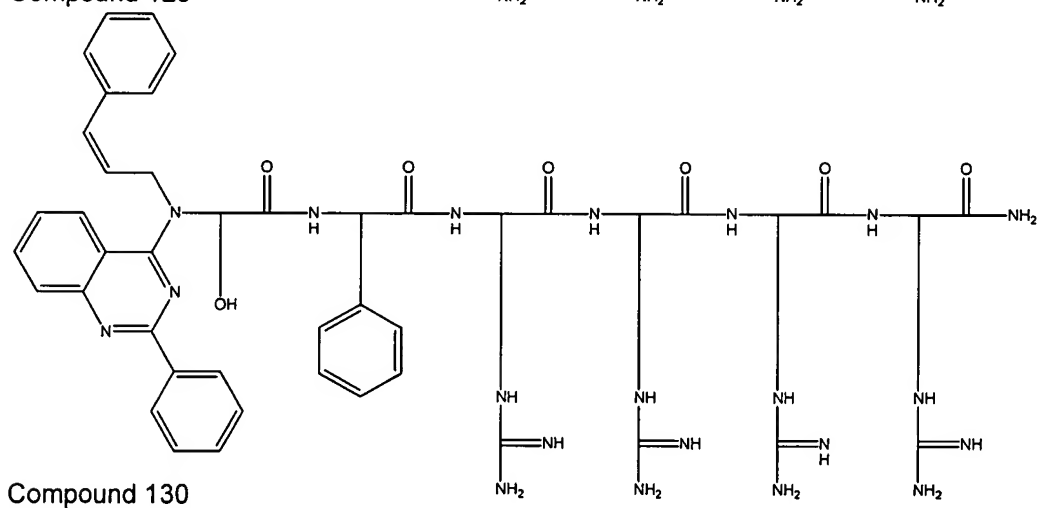
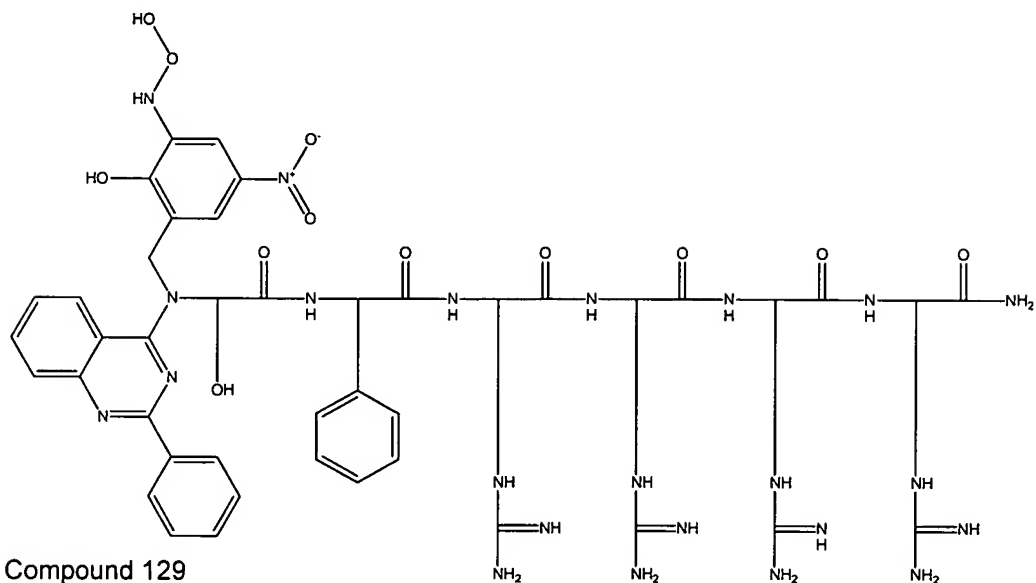


Compound 127

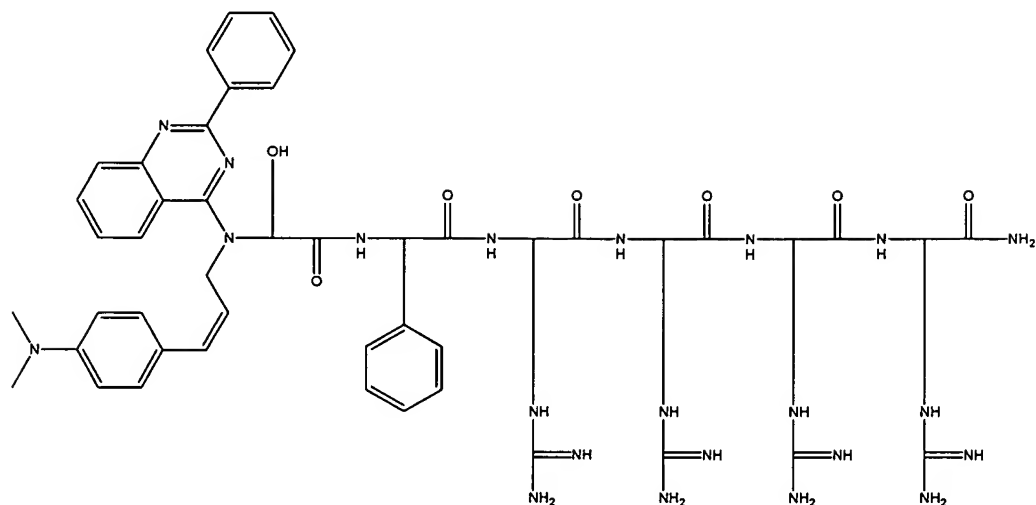


Compound 128

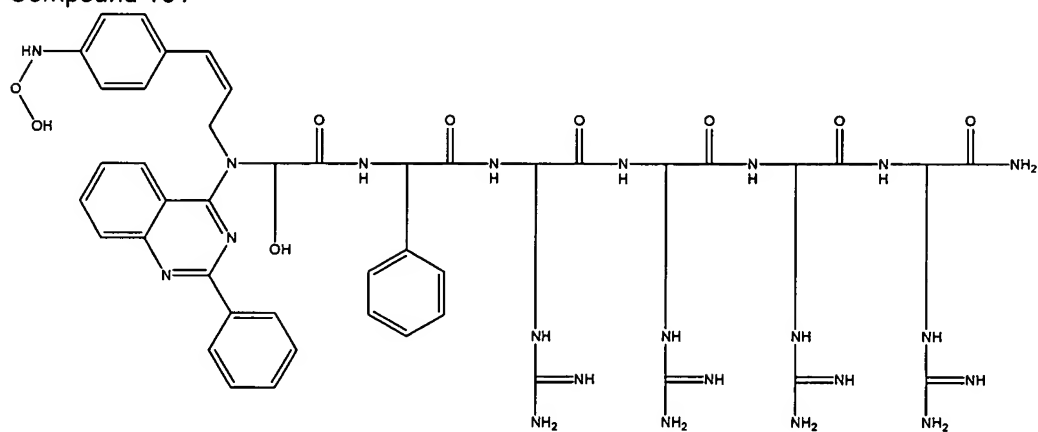
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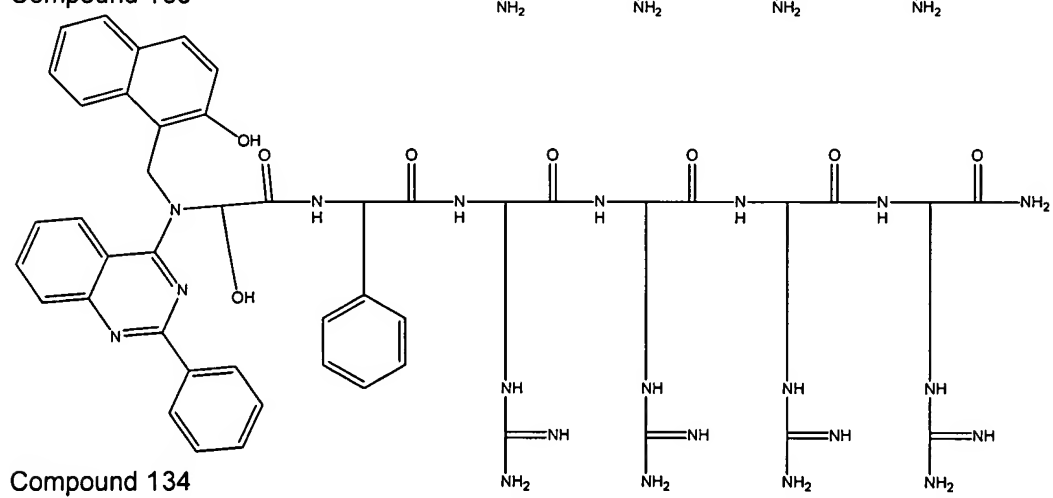
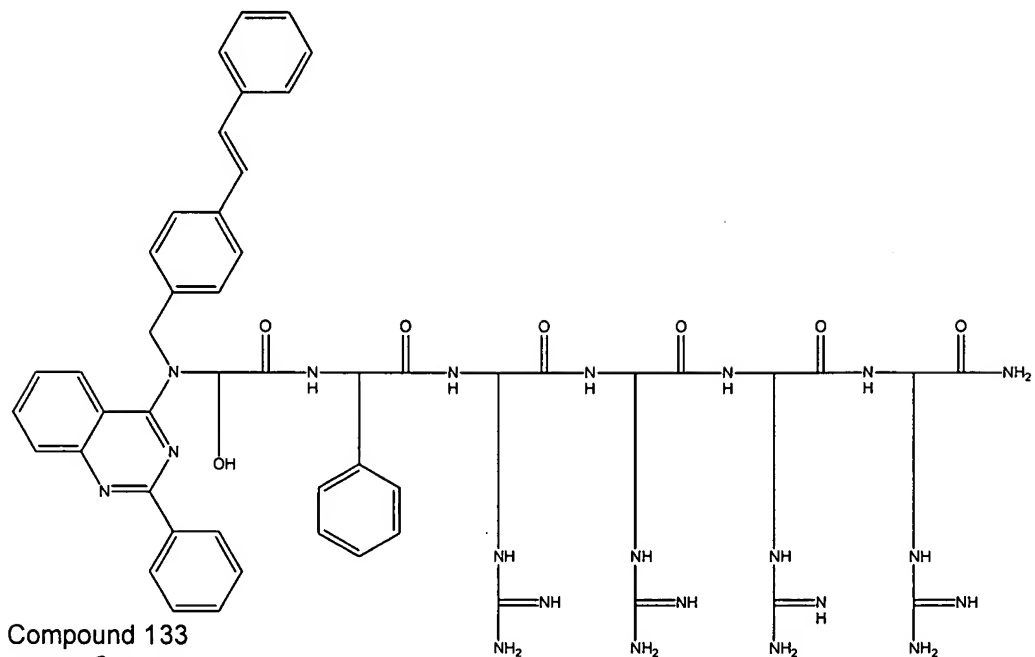
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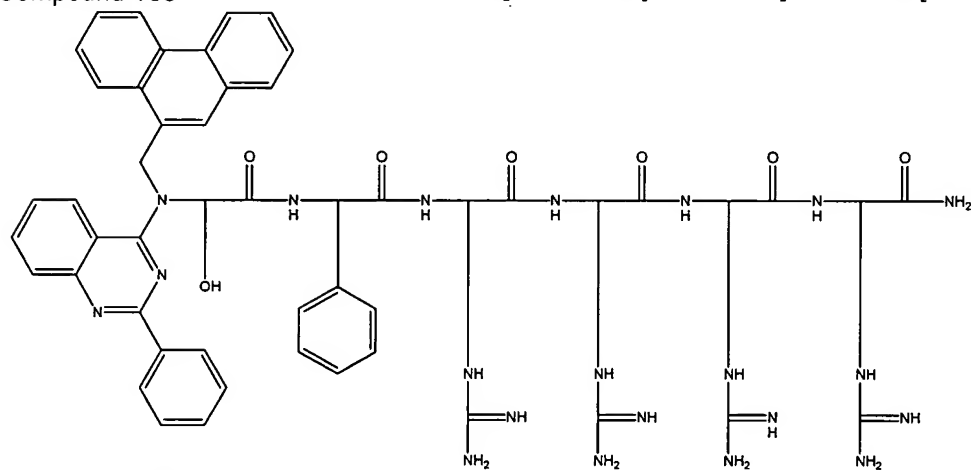
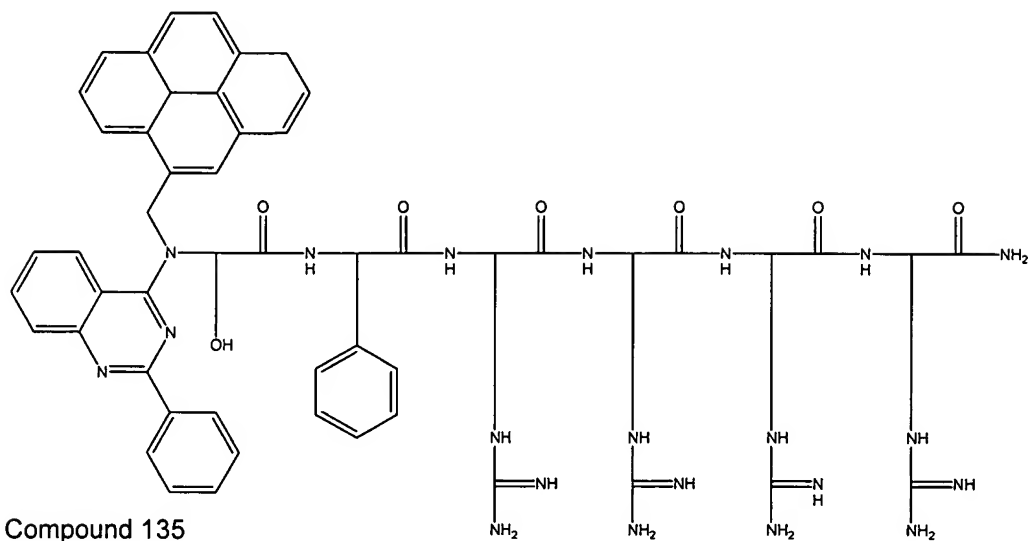


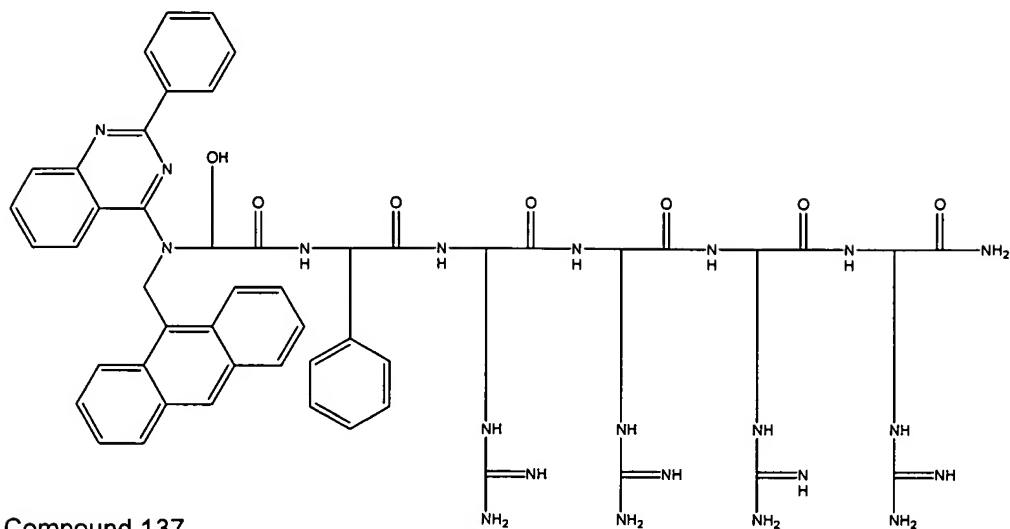
Compound 131



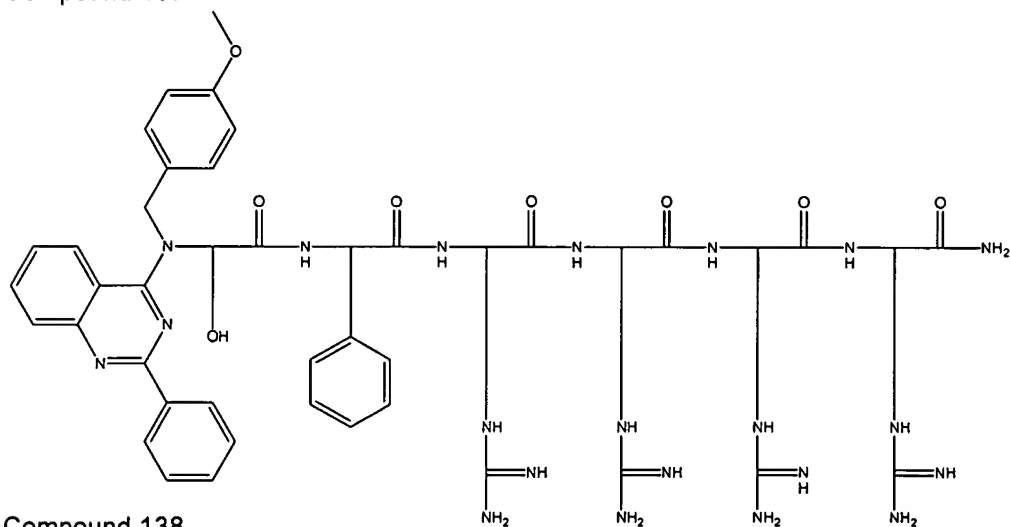
Compound 132



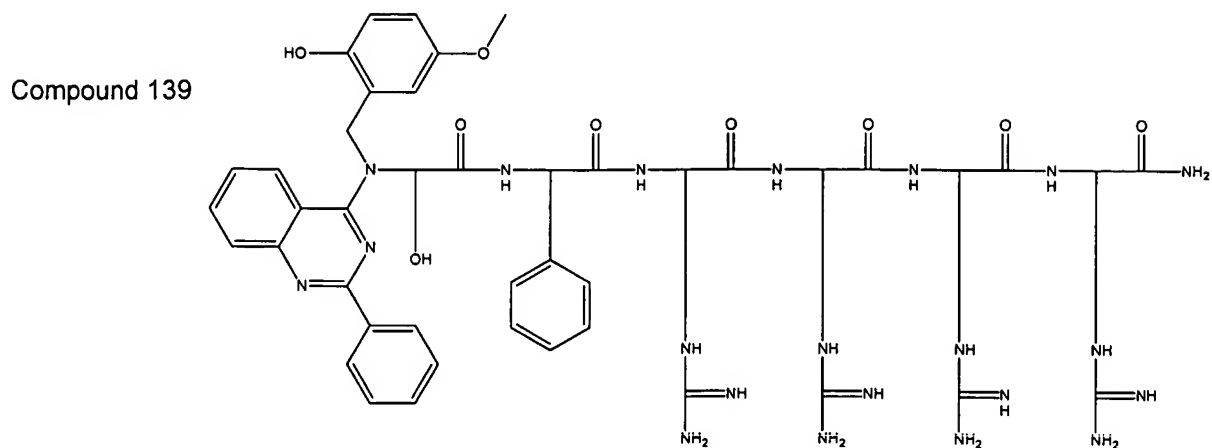




Compound 137



Compound 138

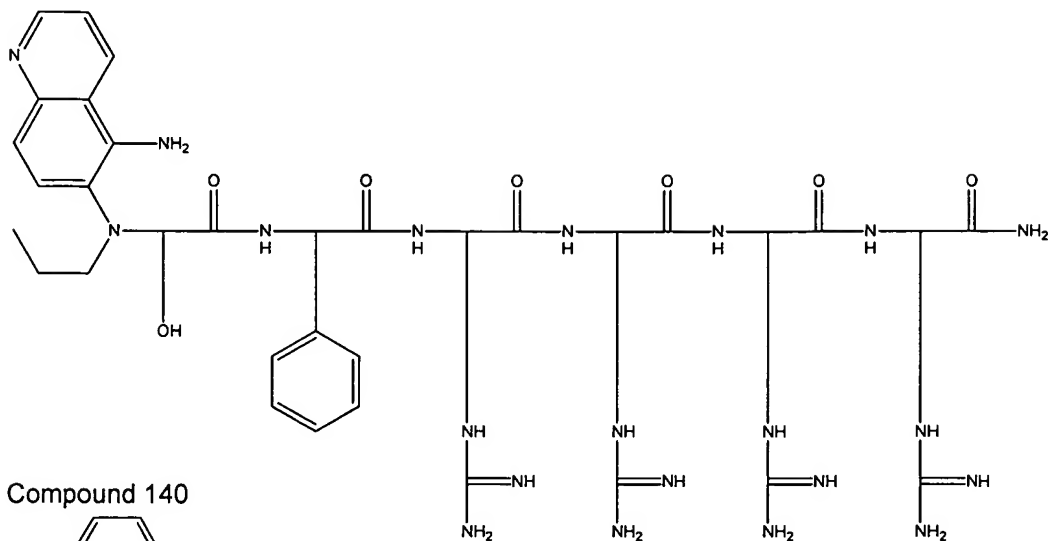


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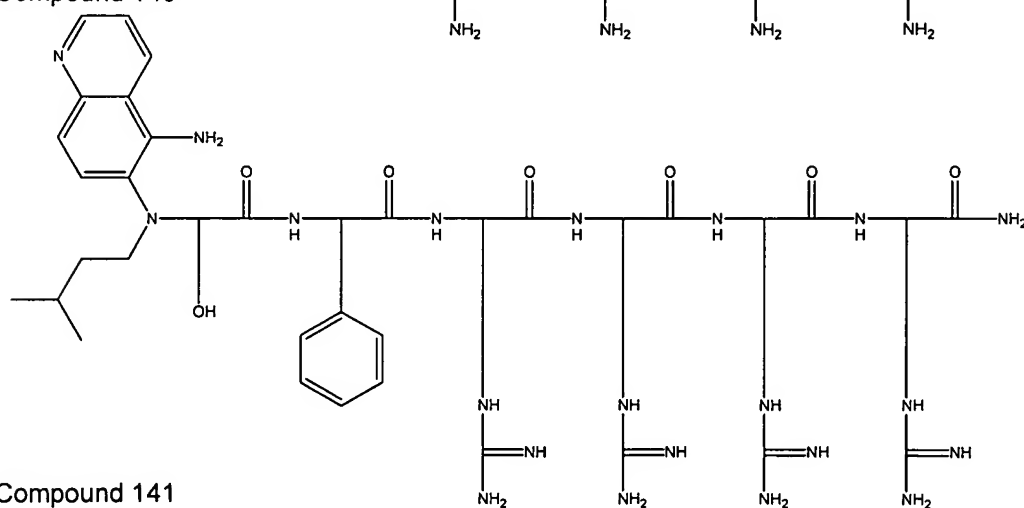
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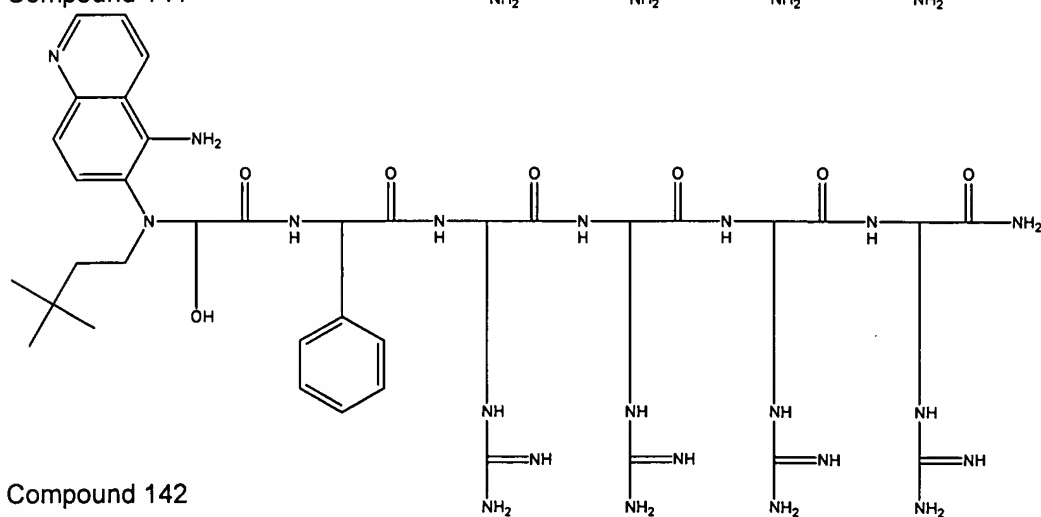
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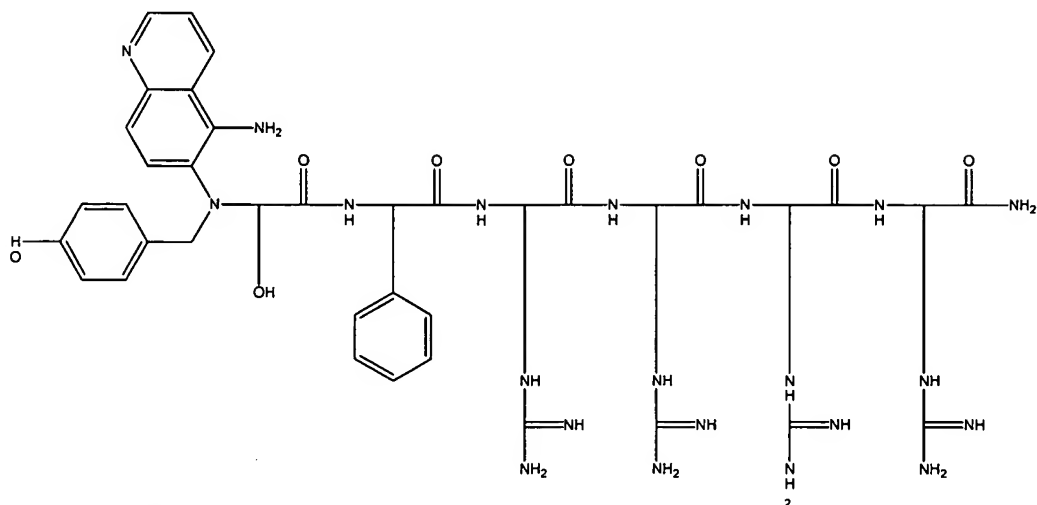
Compound 140



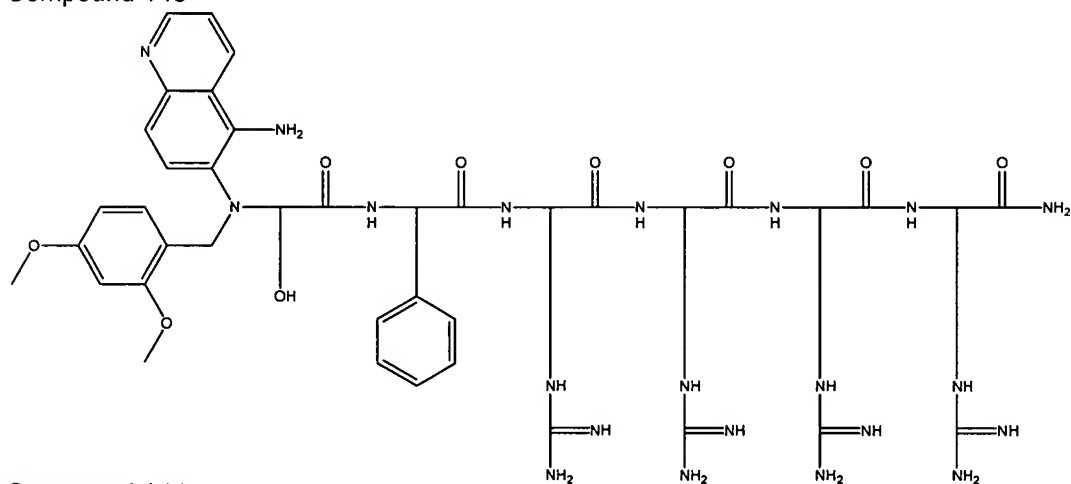
Compound 141



Compound 142

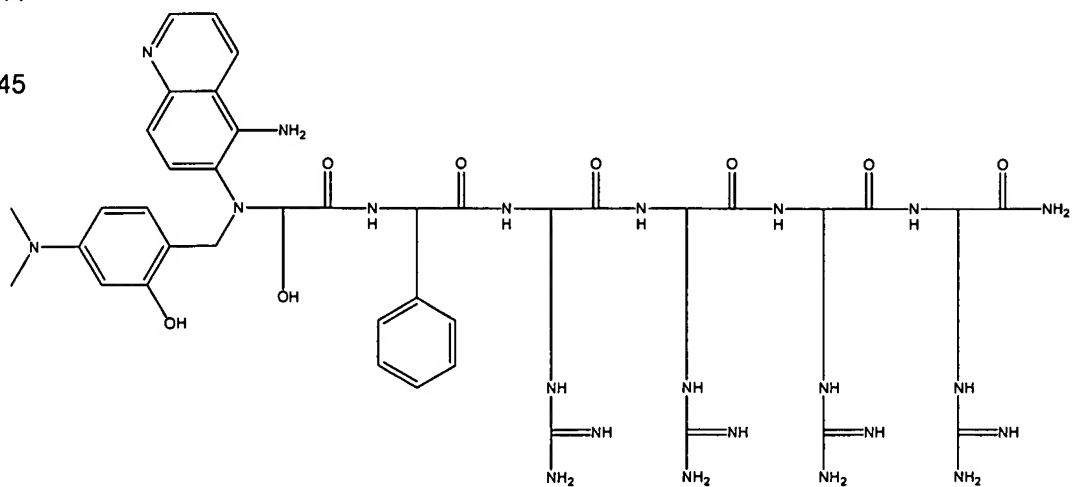


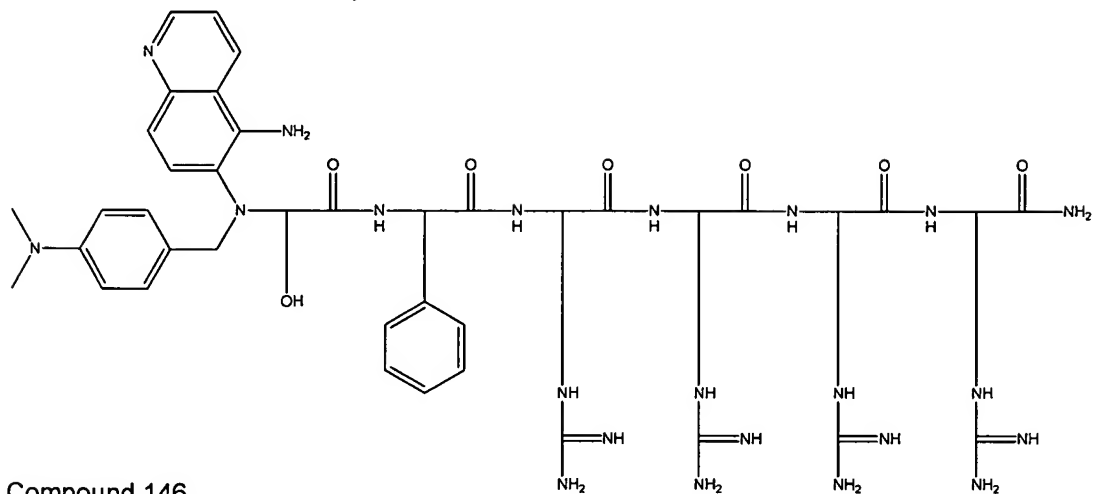
Compound 143



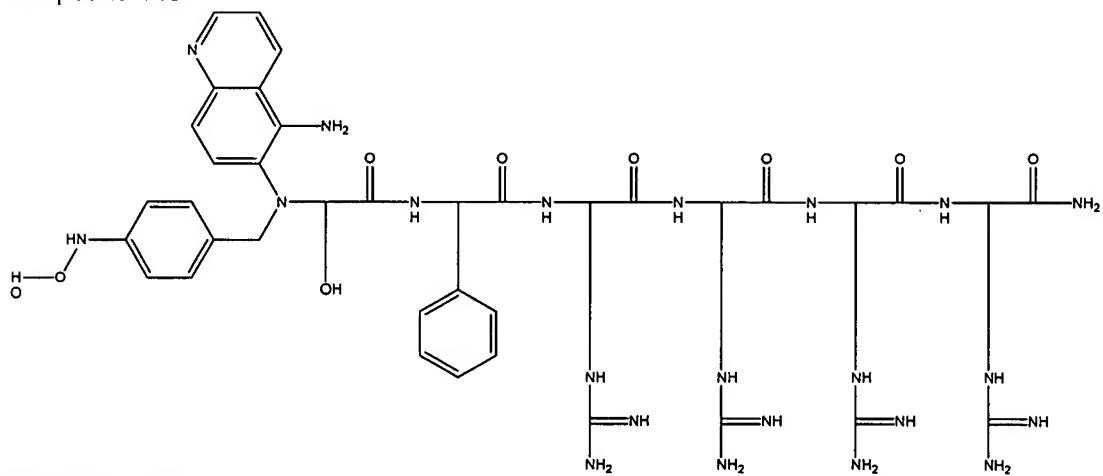
Compound 144

Compound 145

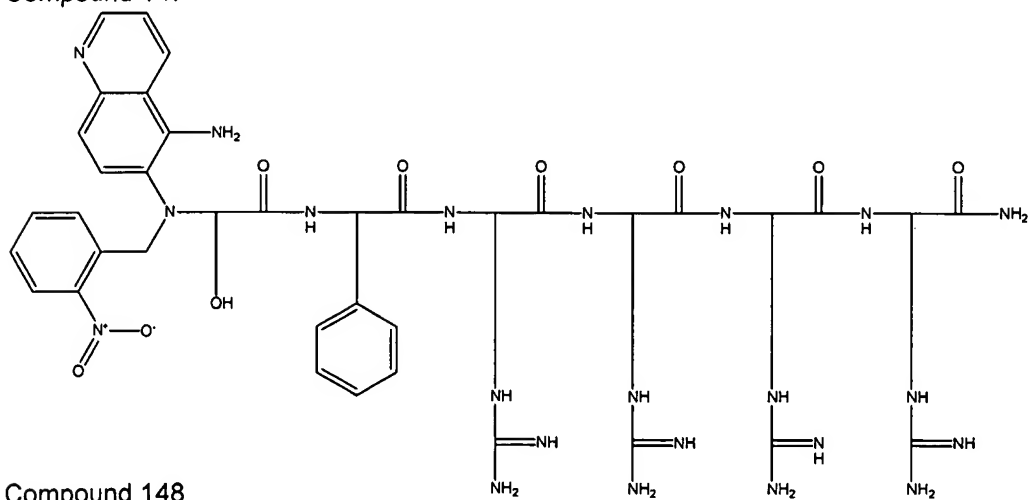




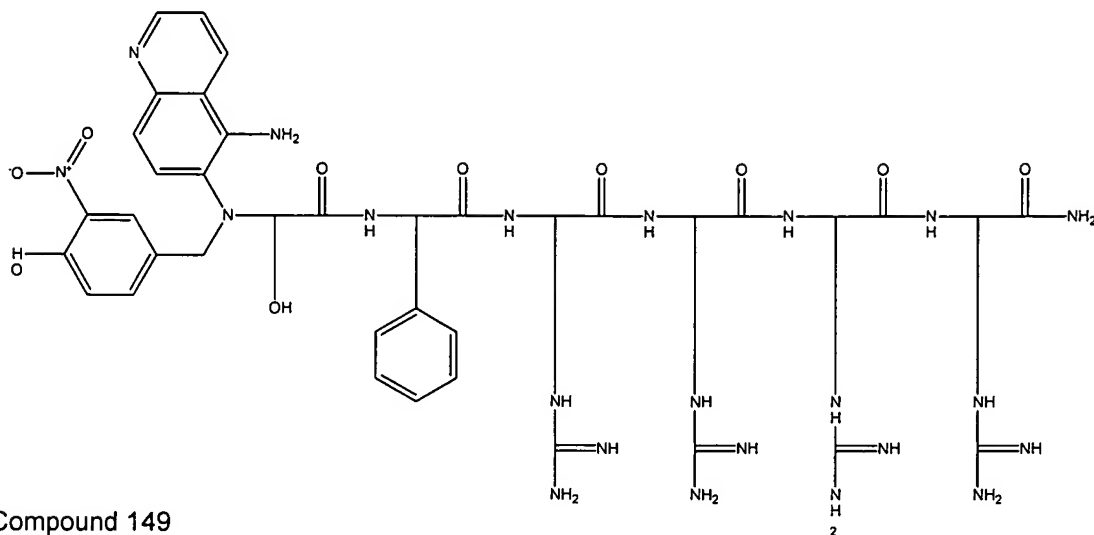
Compound 146



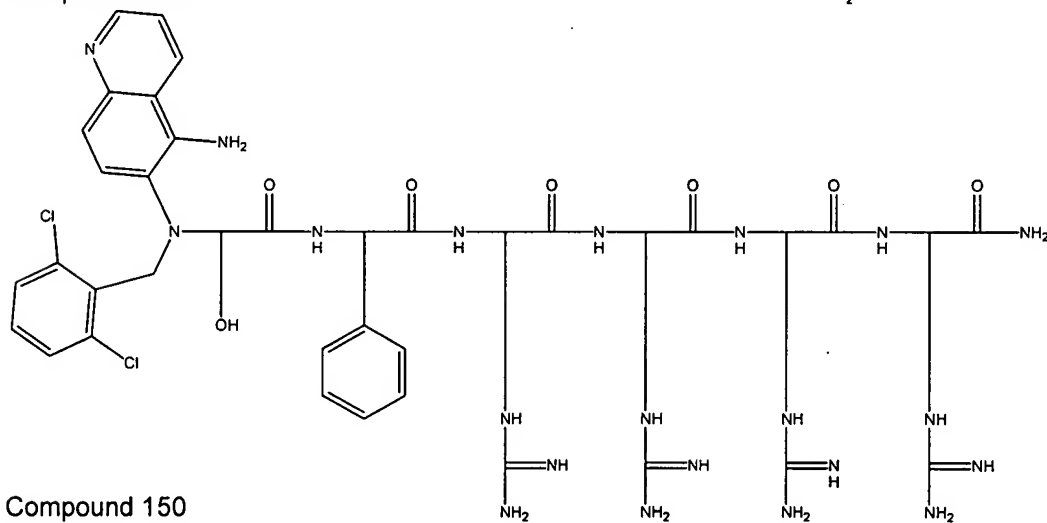
Compound 147



Compound 148

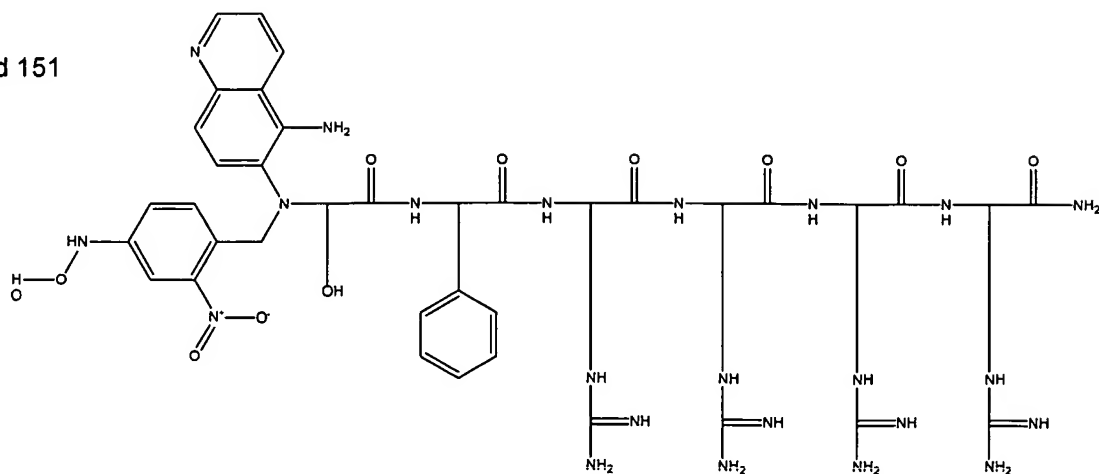


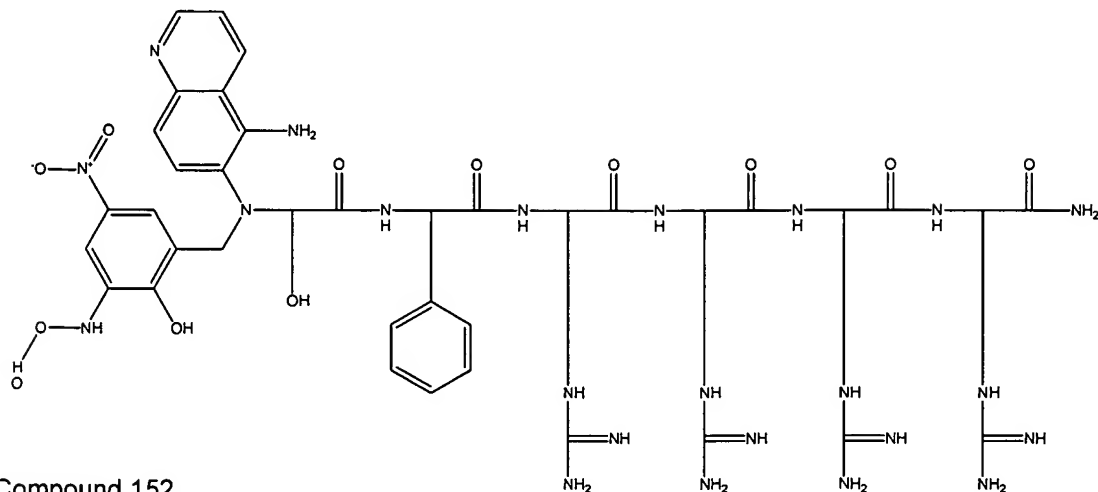
Compound 149



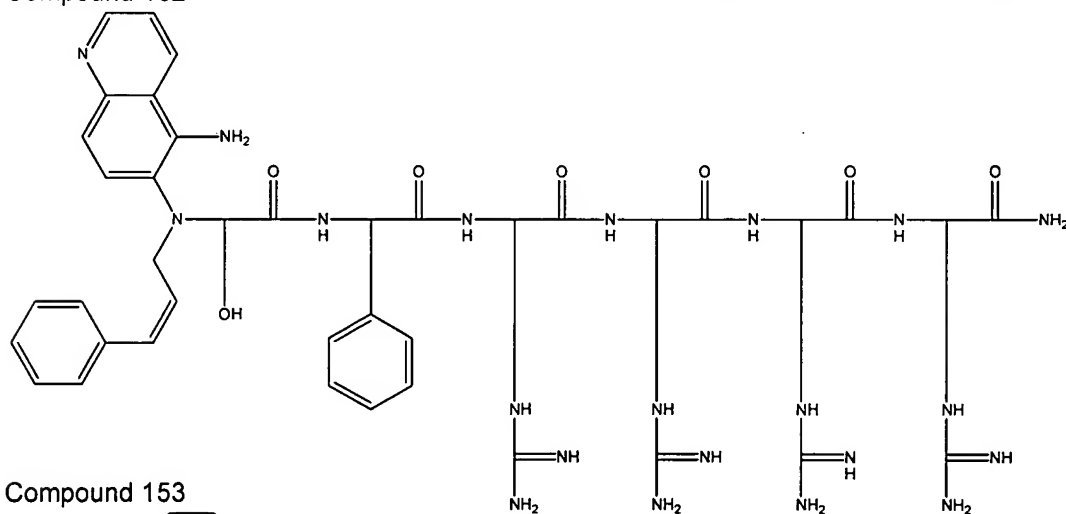
Compound 150

Compound 151

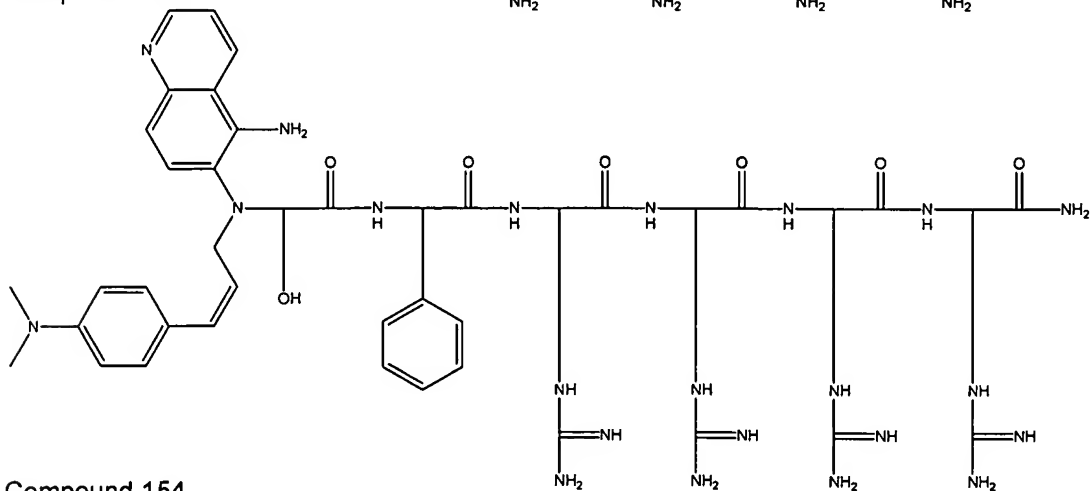




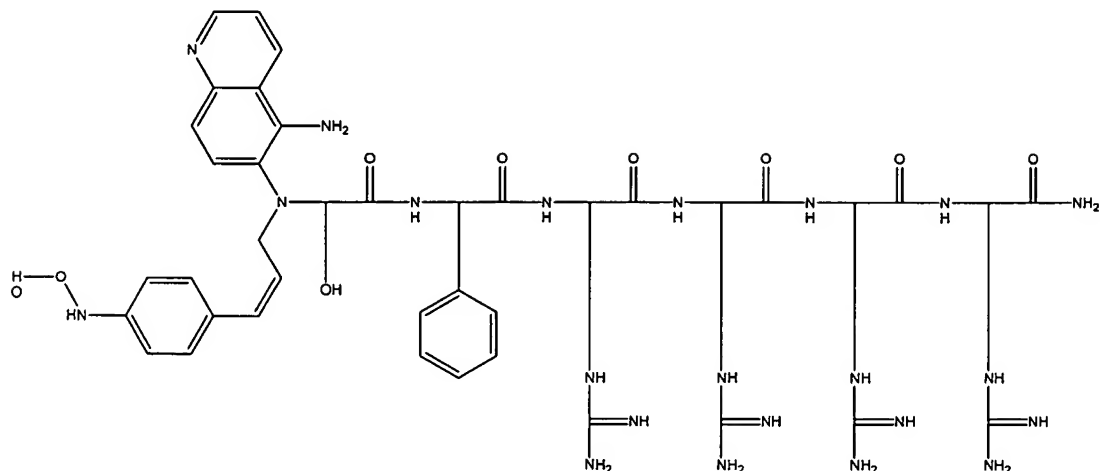
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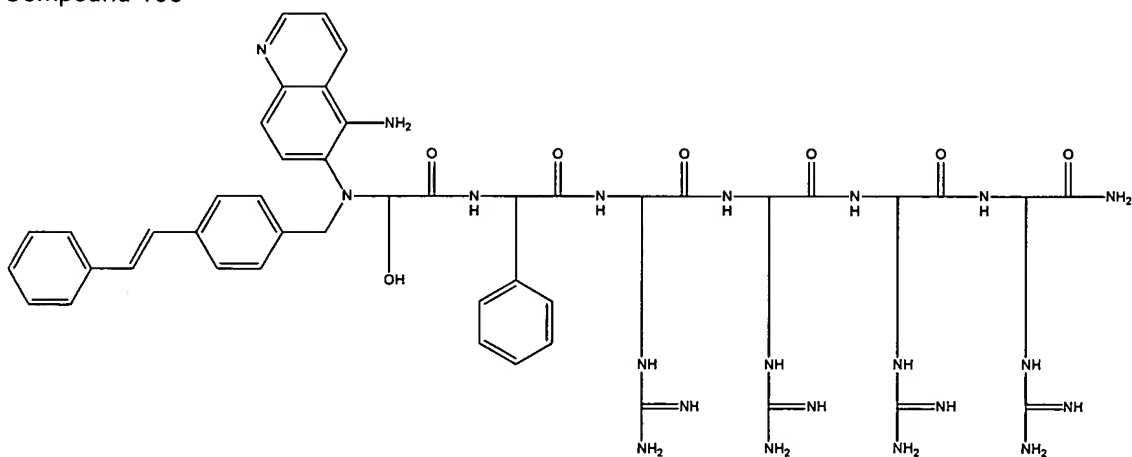
Compound 153



Compound 154

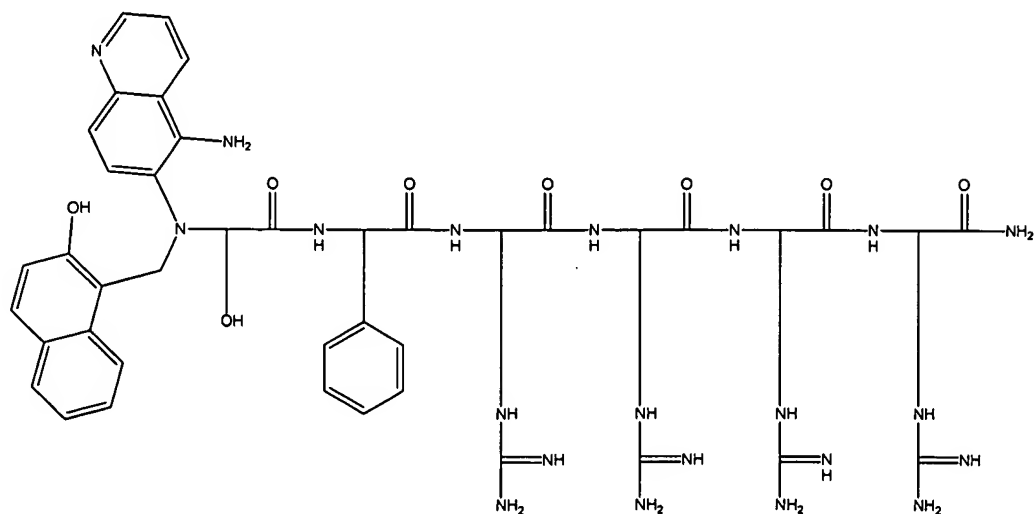


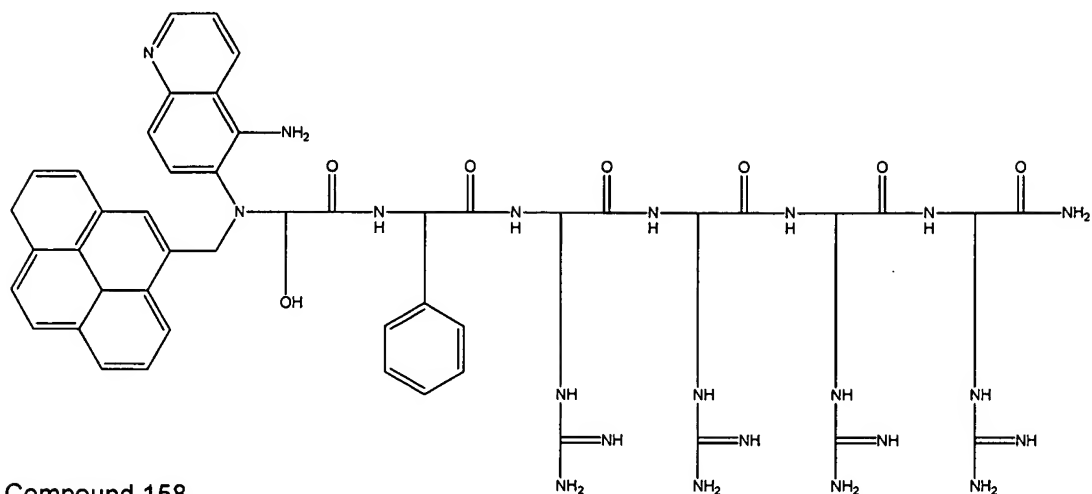
Compound 155



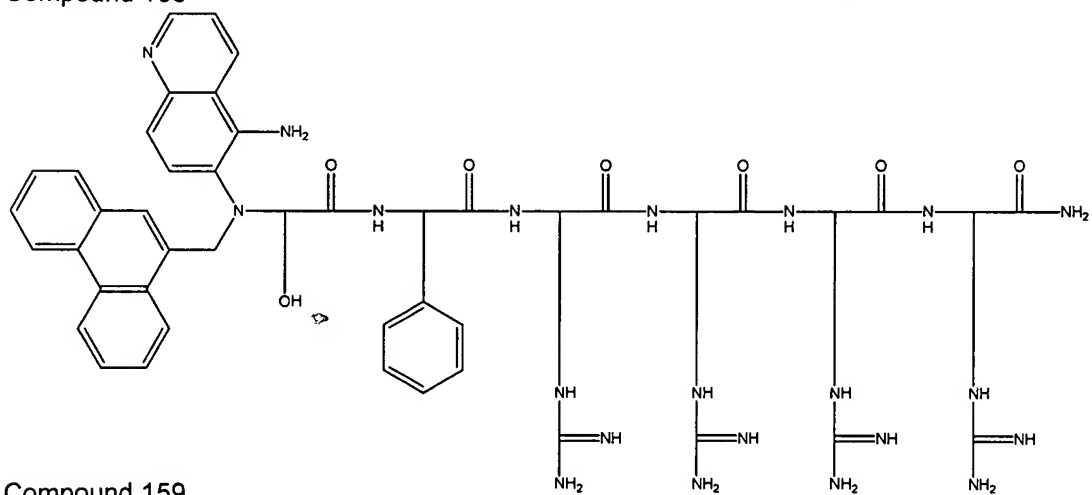
Compound 156

Compound 157

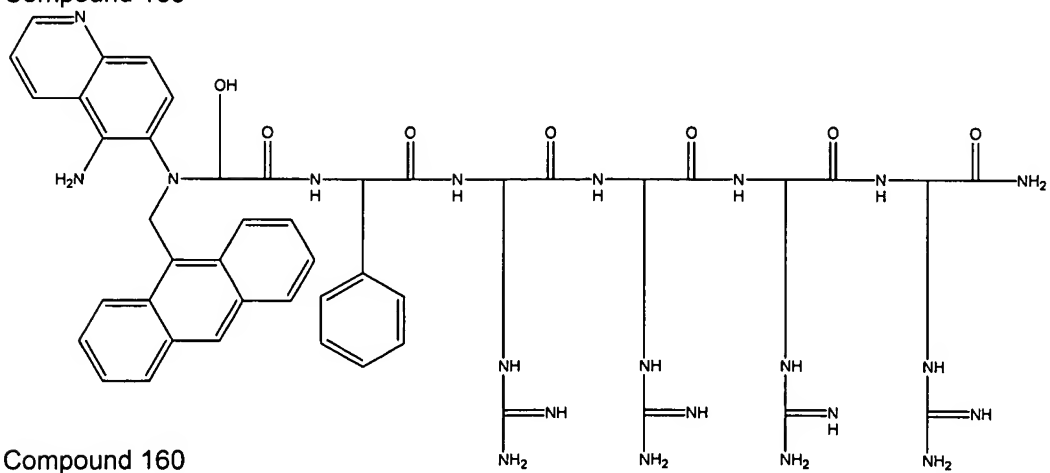




Compound 158



Compound 159



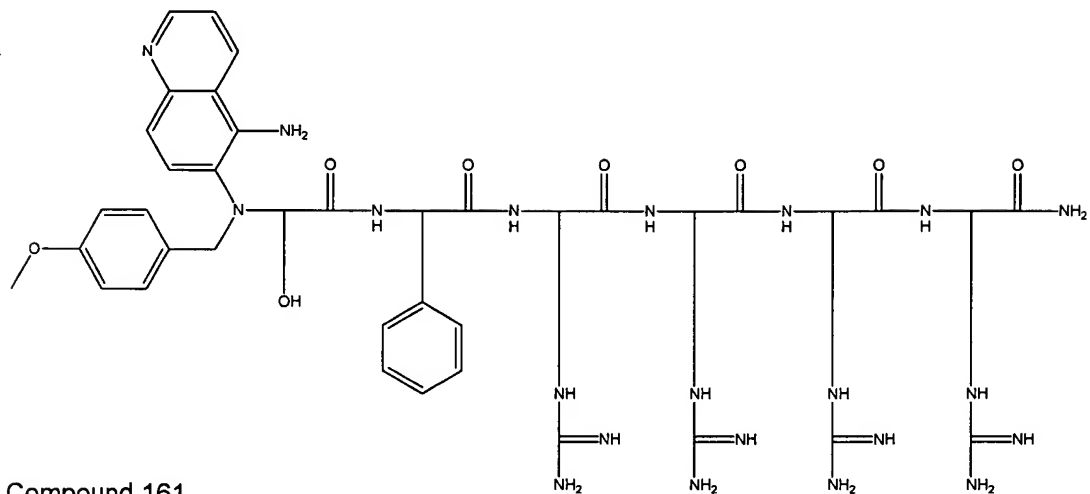
Compound 160

Applicant: David S. Lawrence

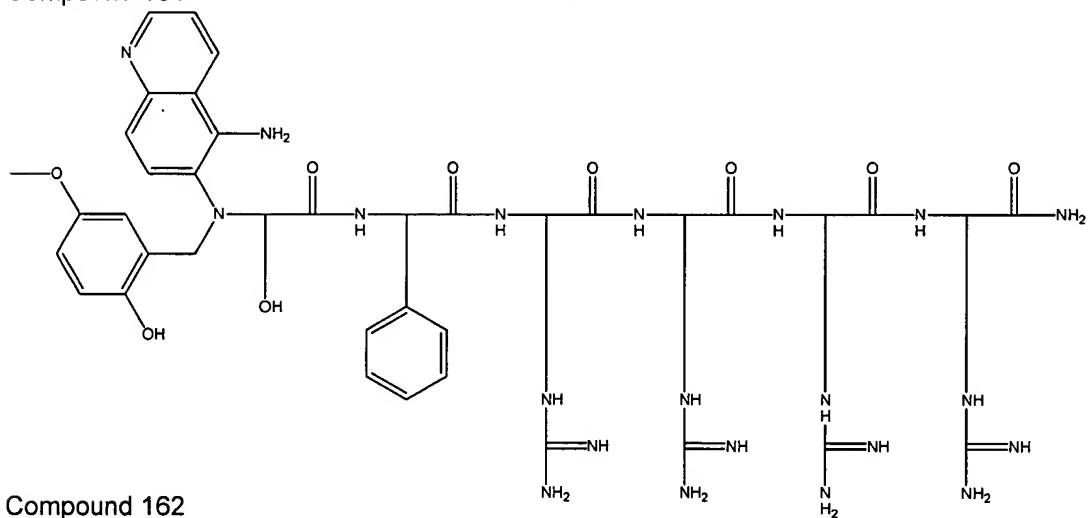
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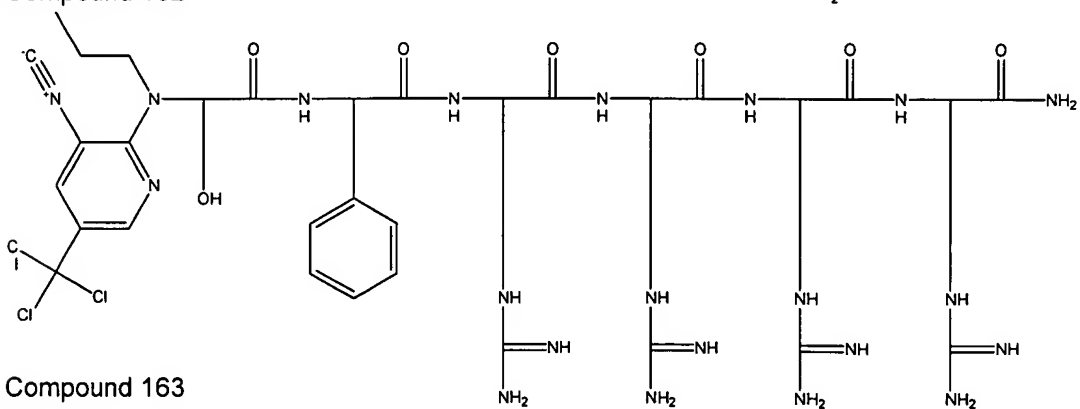
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Compound 161

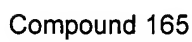
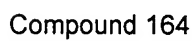


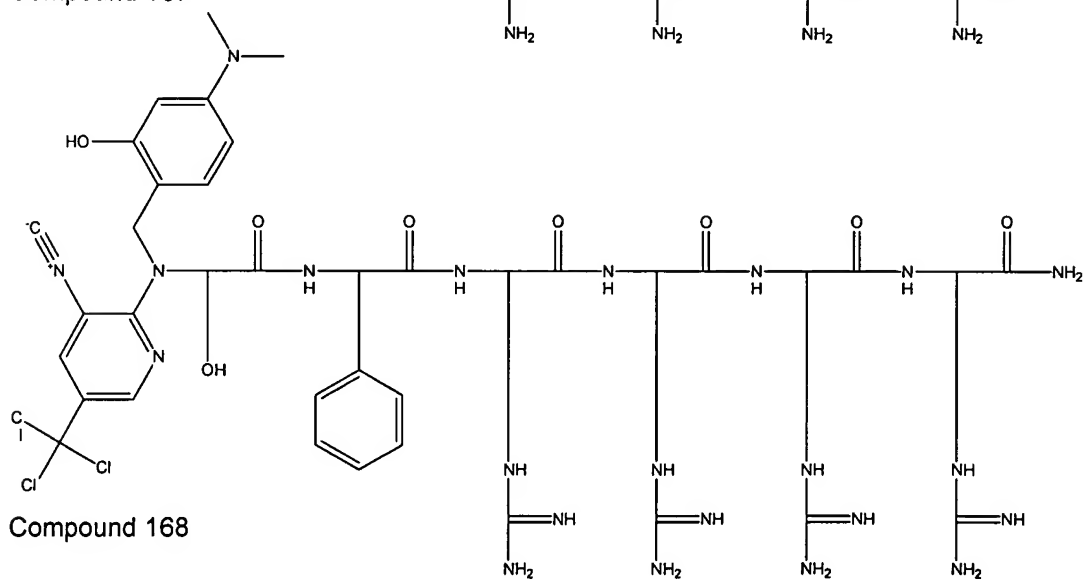
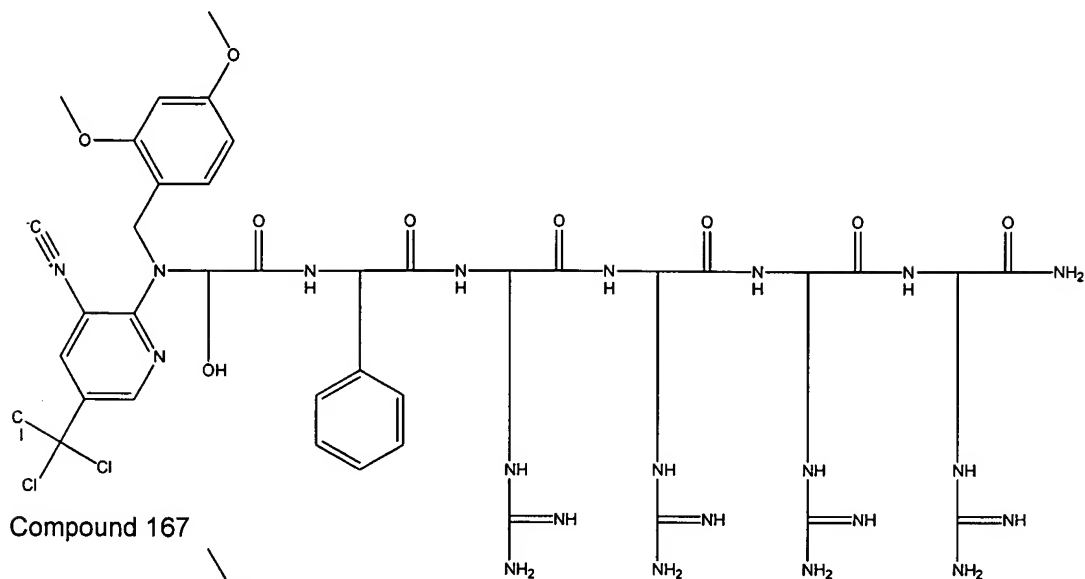
Compound 162

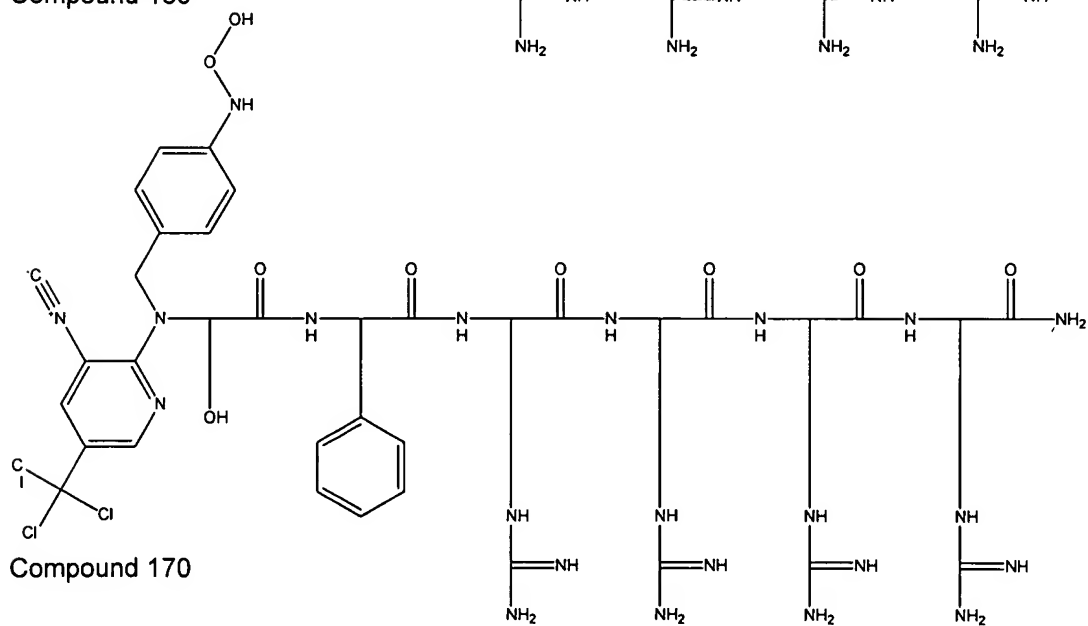
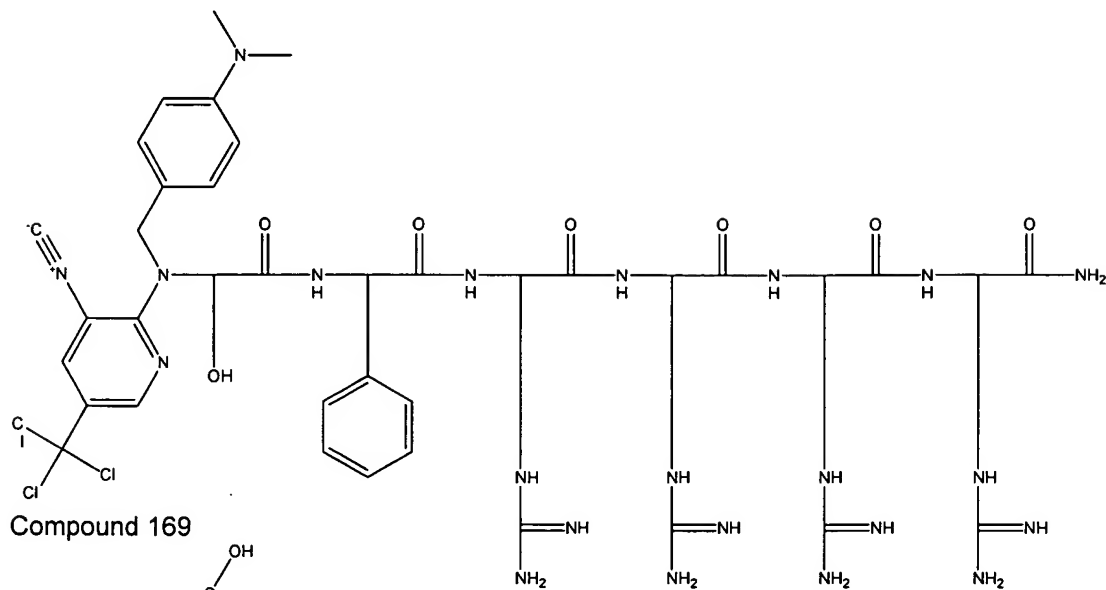


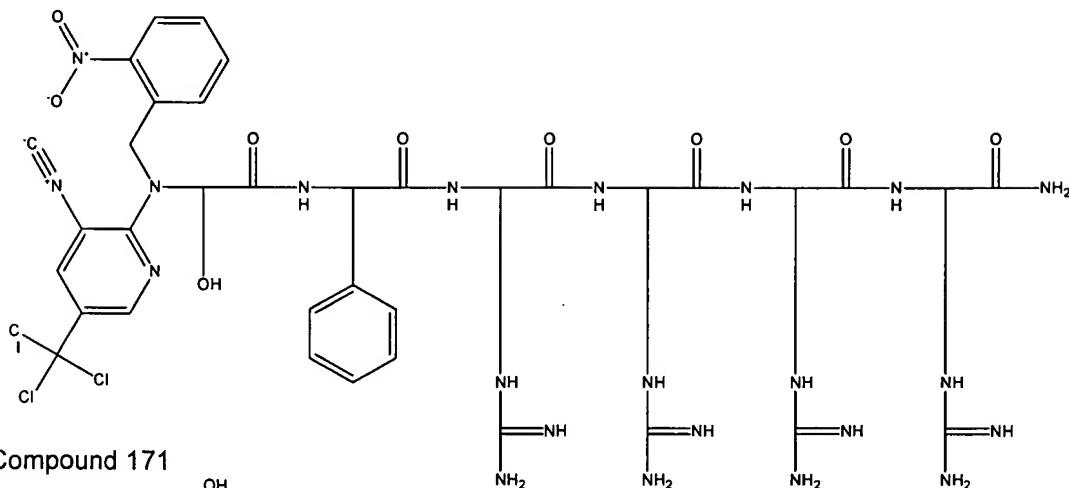
Compound 163

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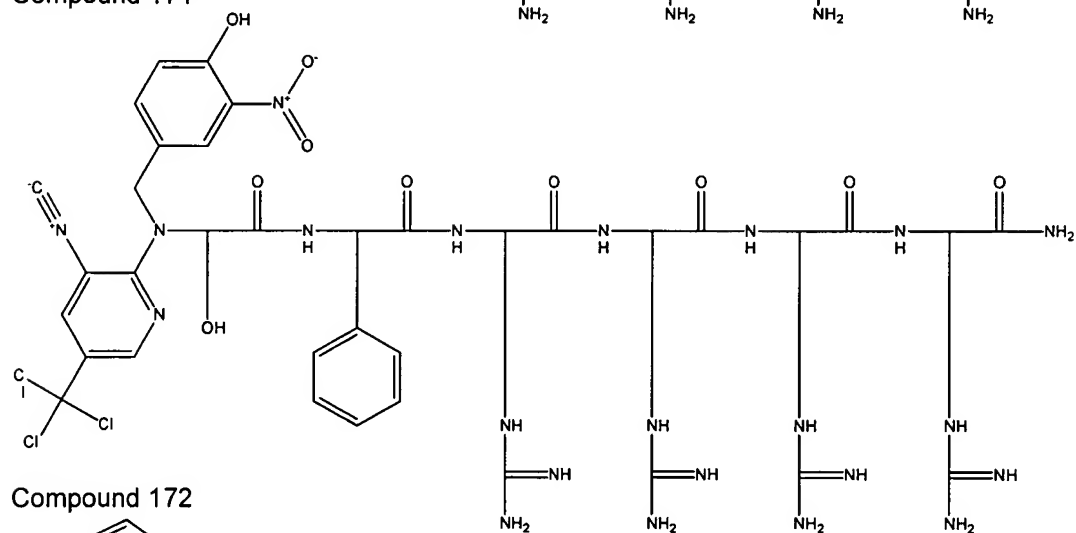




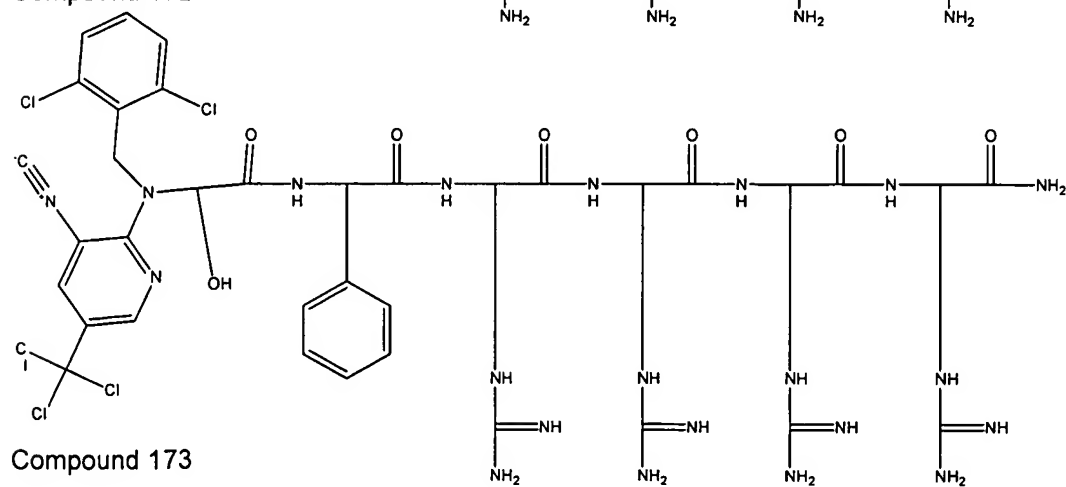




Compound 171

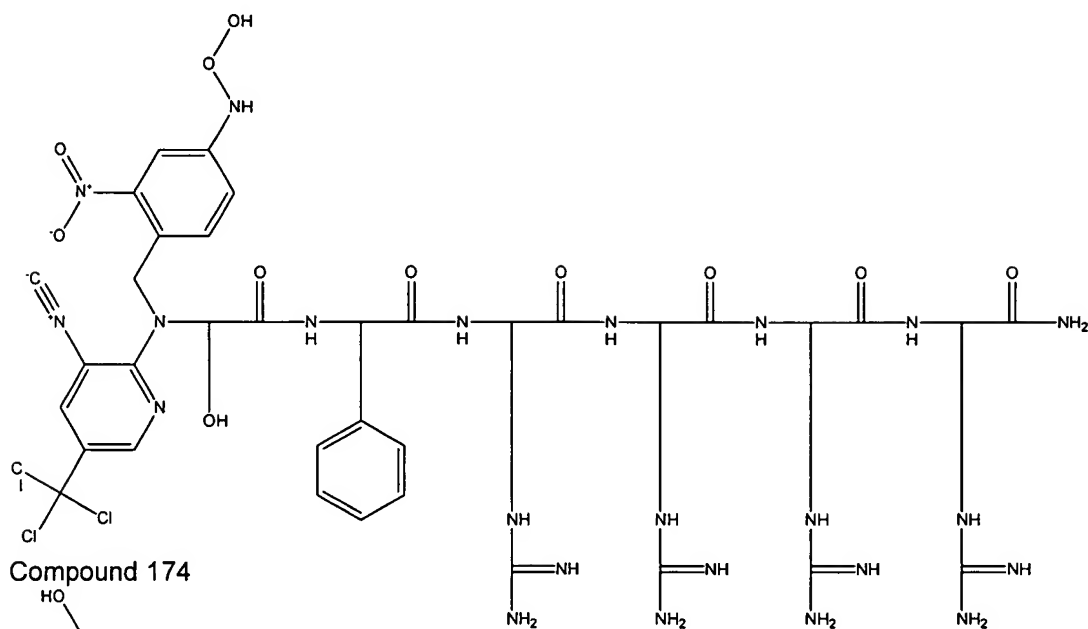


Compound 172

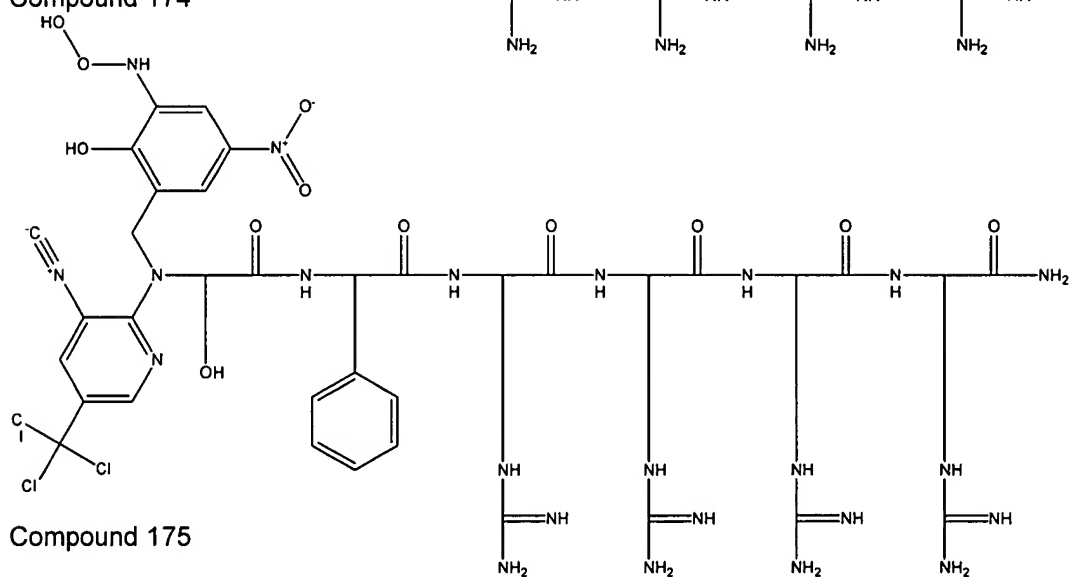


Compound 173

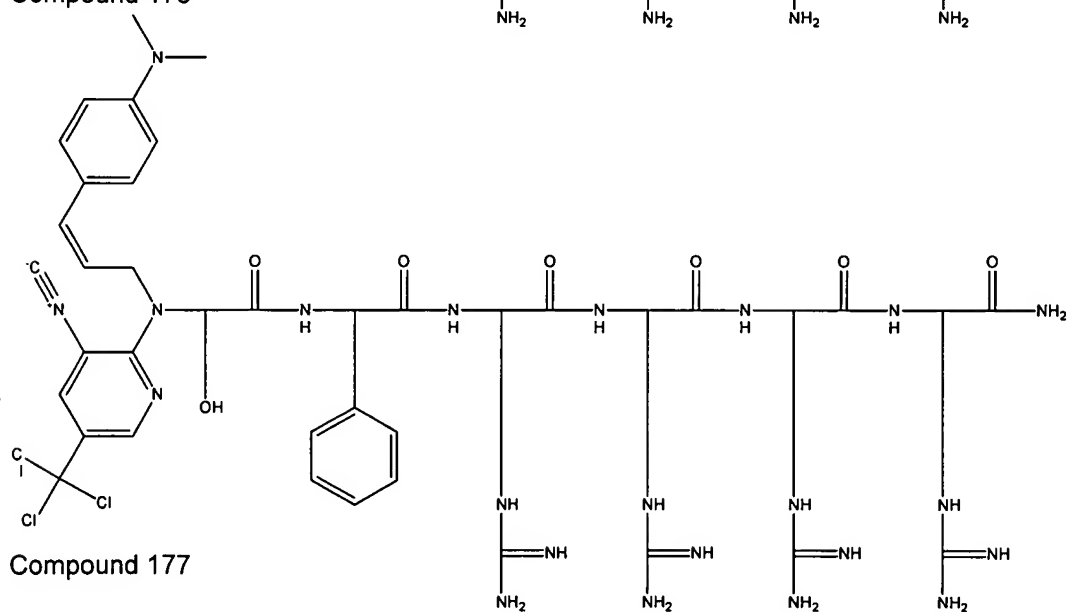
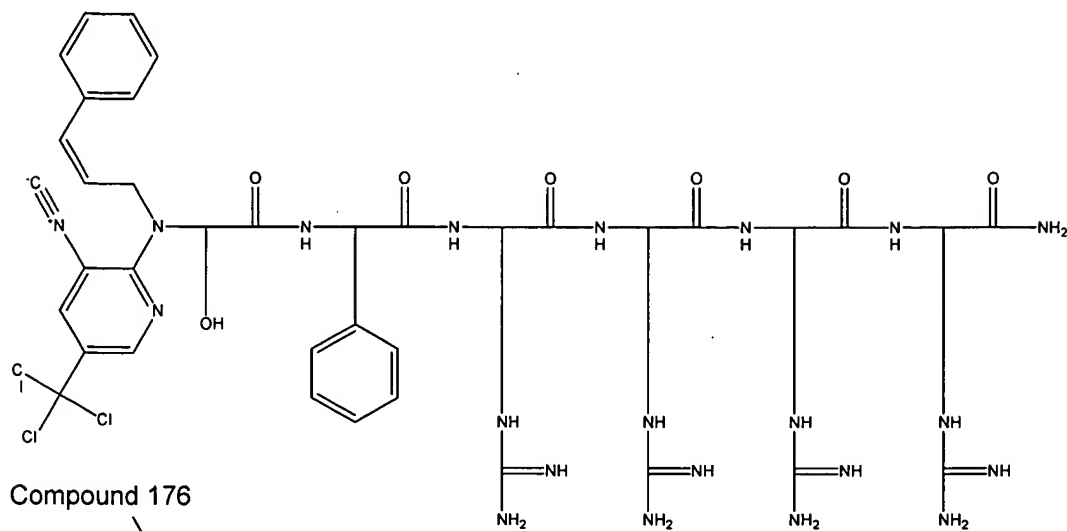
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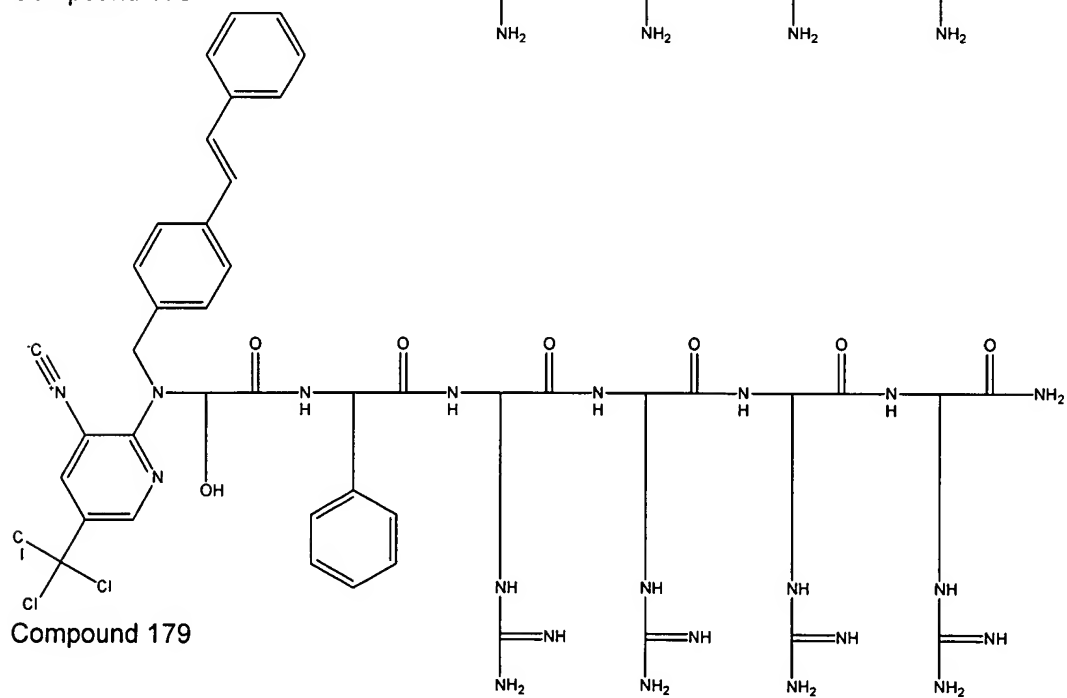
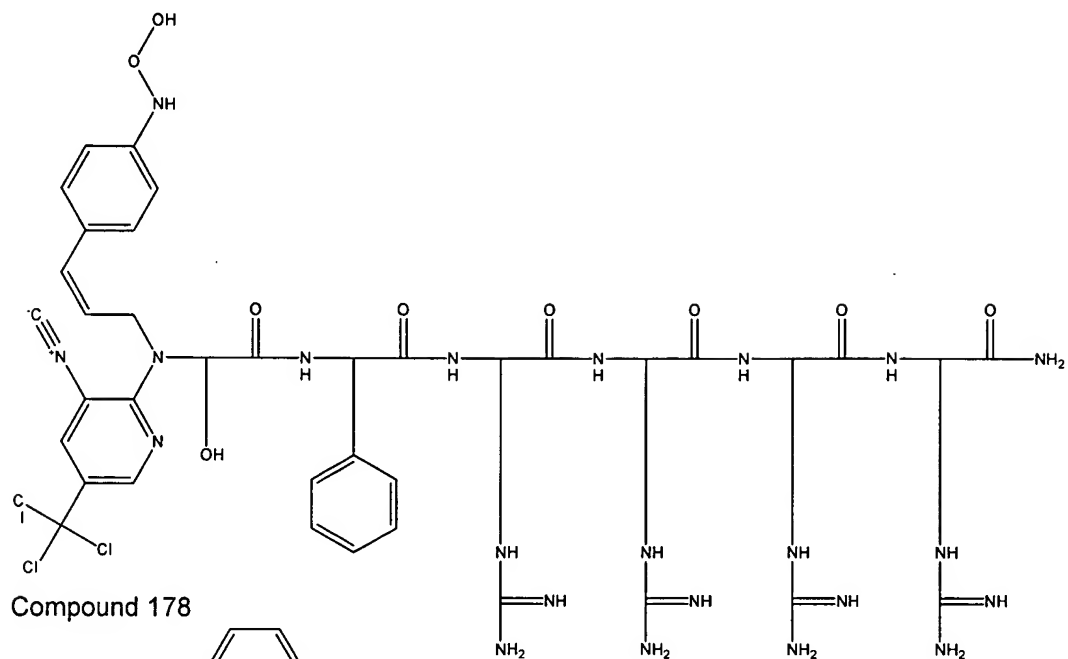


Compound 174



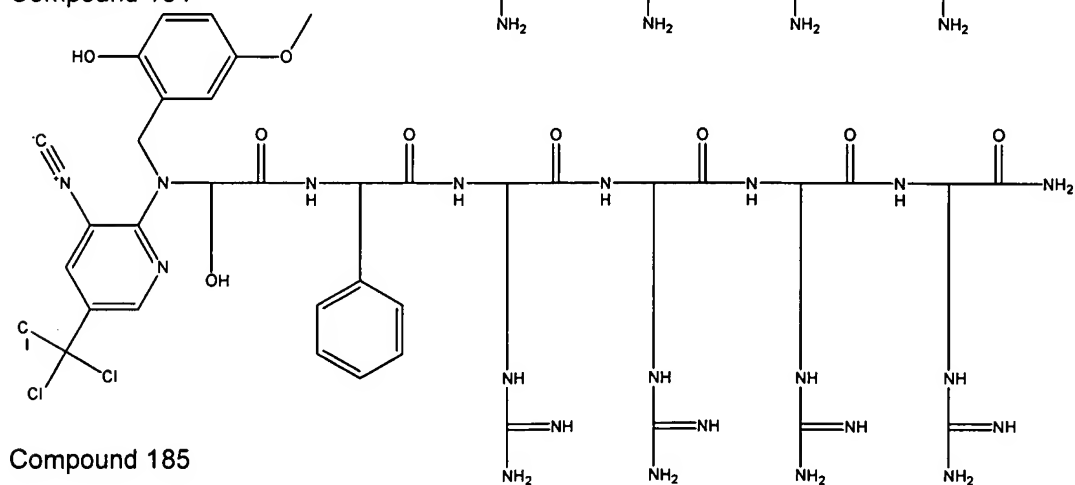
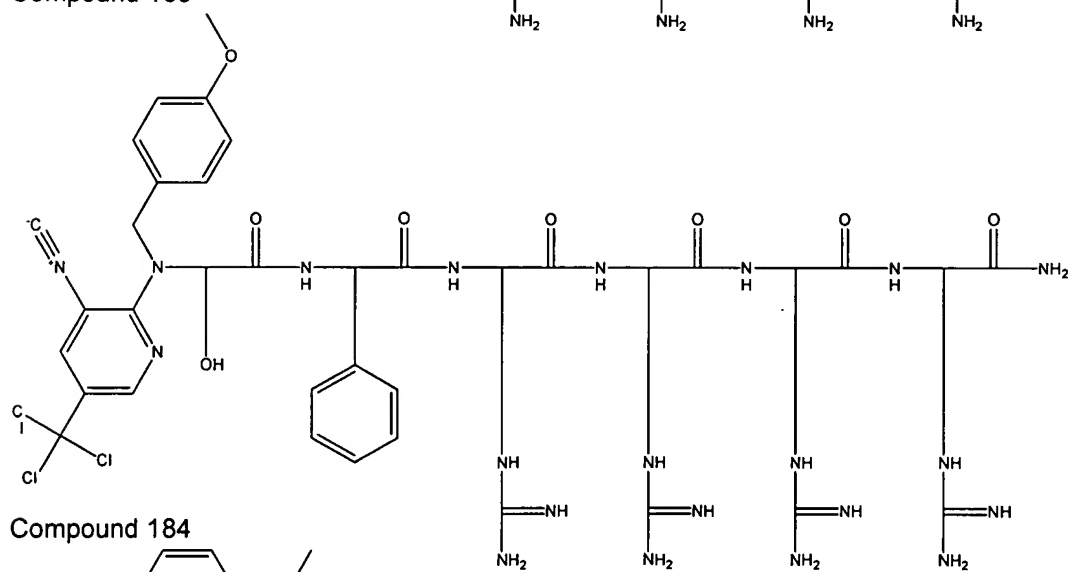
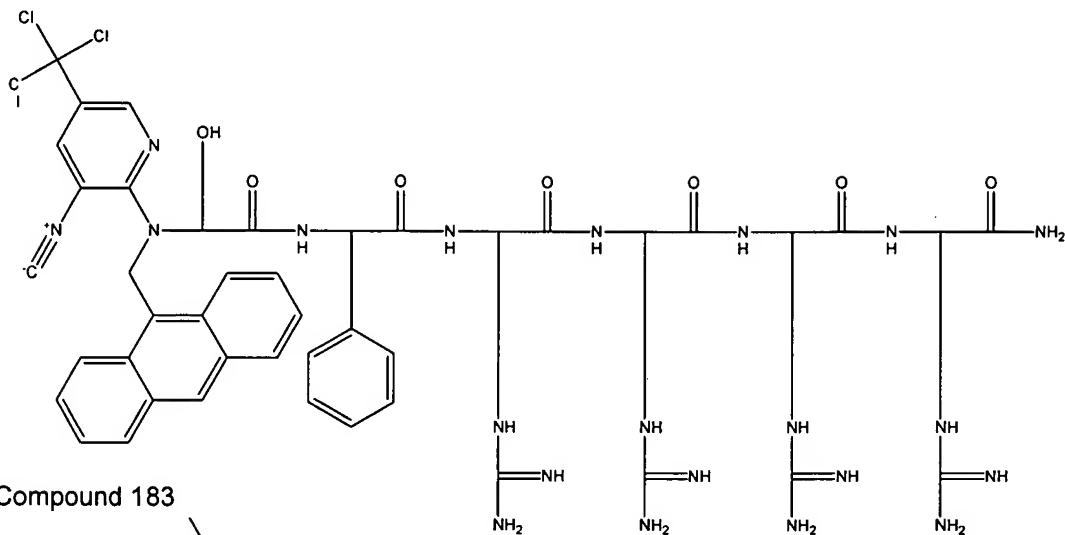
Compound 175

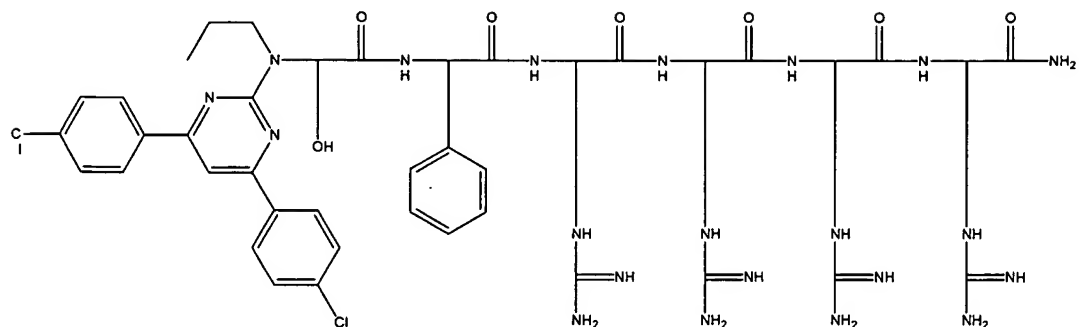




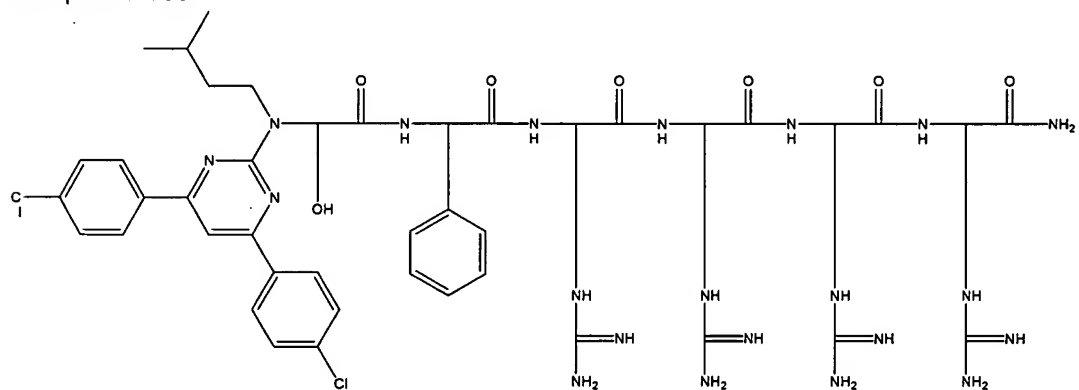
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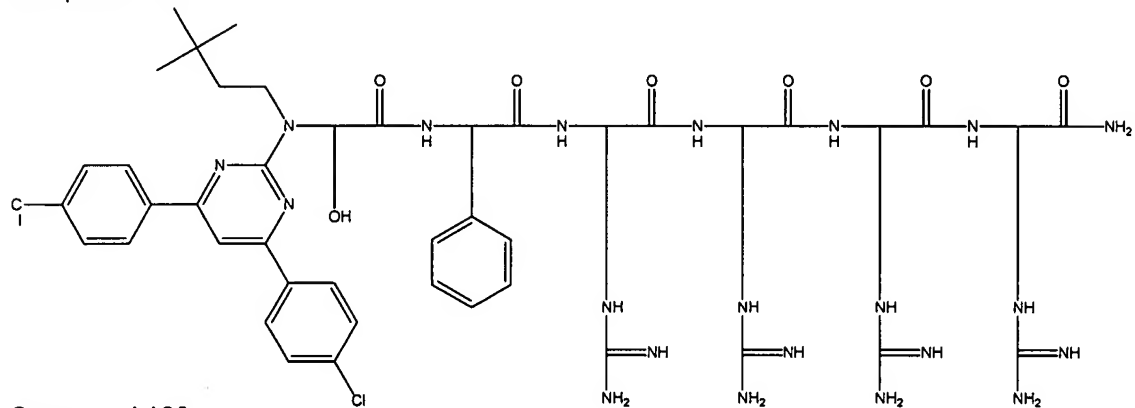




Compound 186



Compound 187



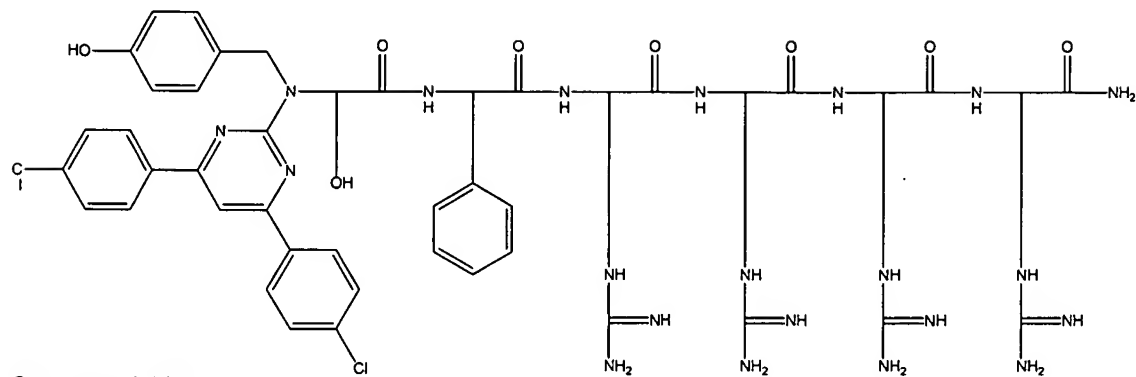
Compound 188

Applicant: David S. Lawrence

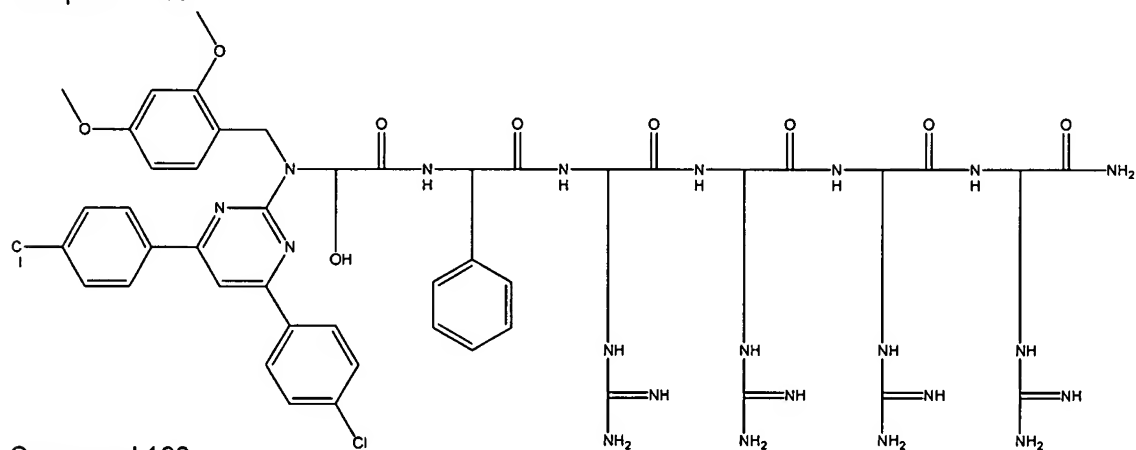
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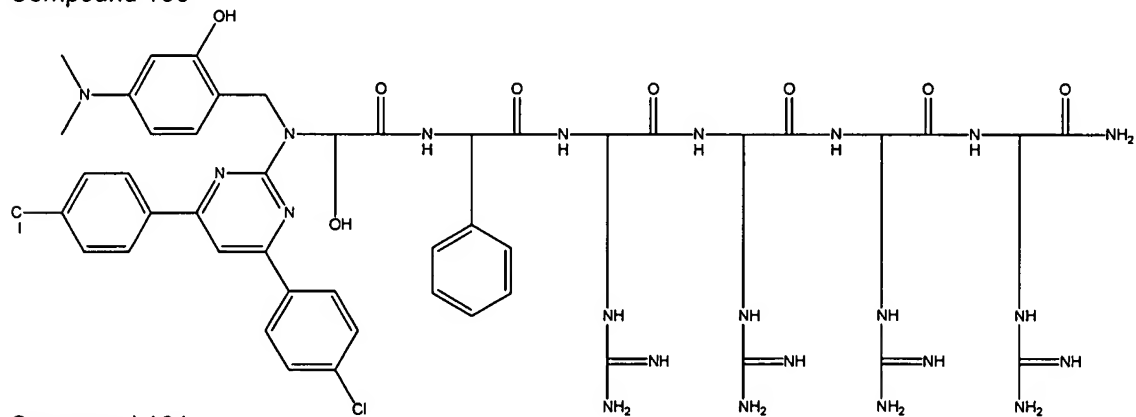
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Compound 189



Compound 190



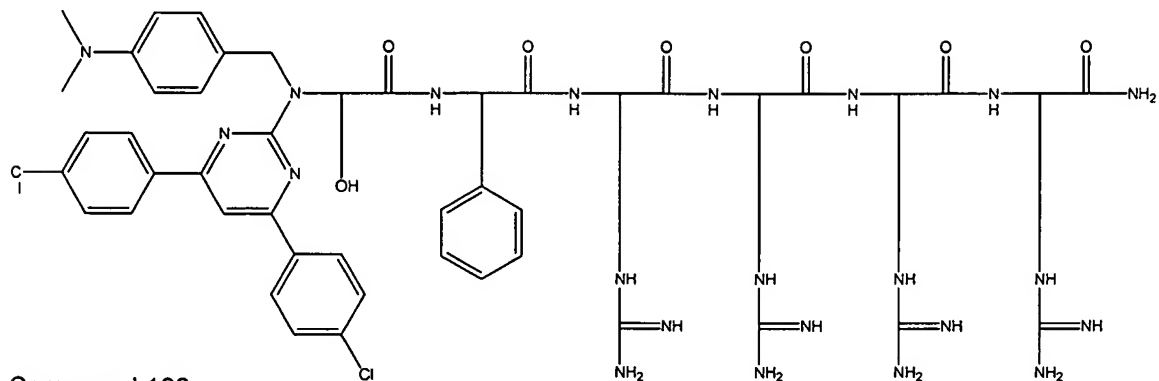
Compound 191

Applicant: David S. Lawrence

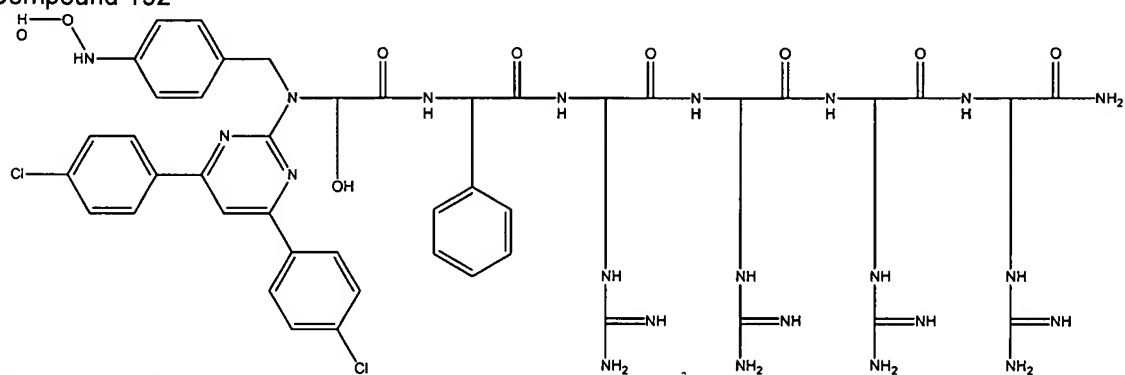
Serial No.: 10/755,086

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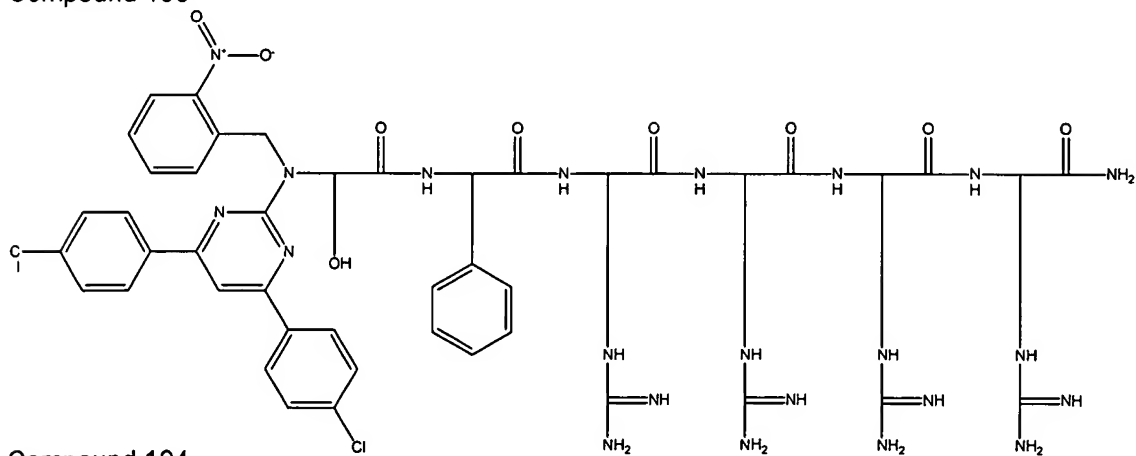
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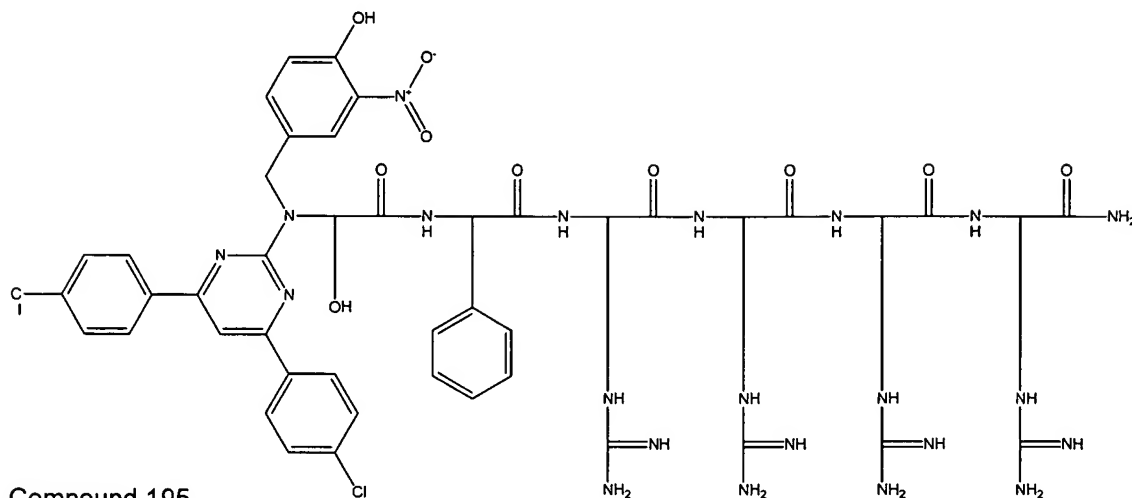
Compound 192



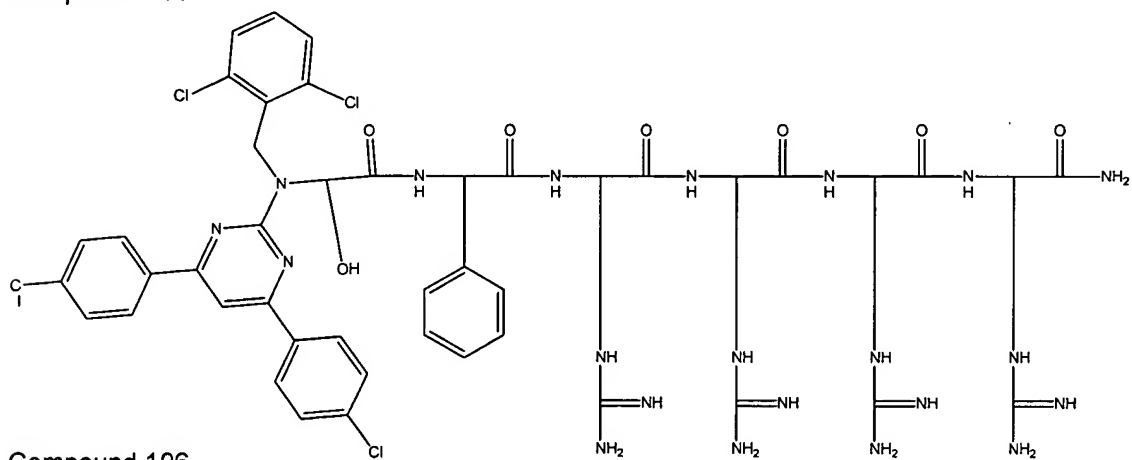
Compound 193



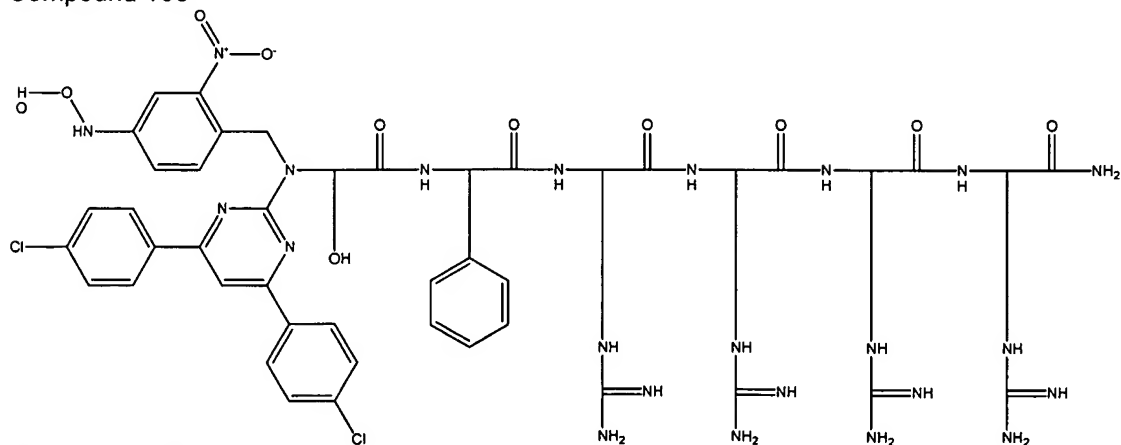
Compound 194



Compound 195



Compound 196



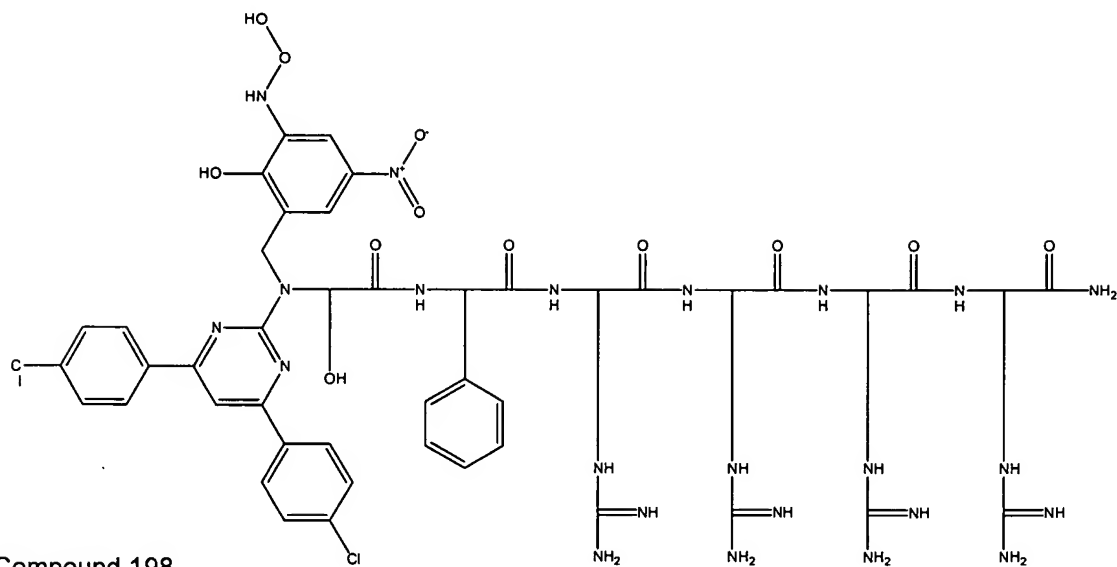
Compound 197

Applicant: David S. Lawrence

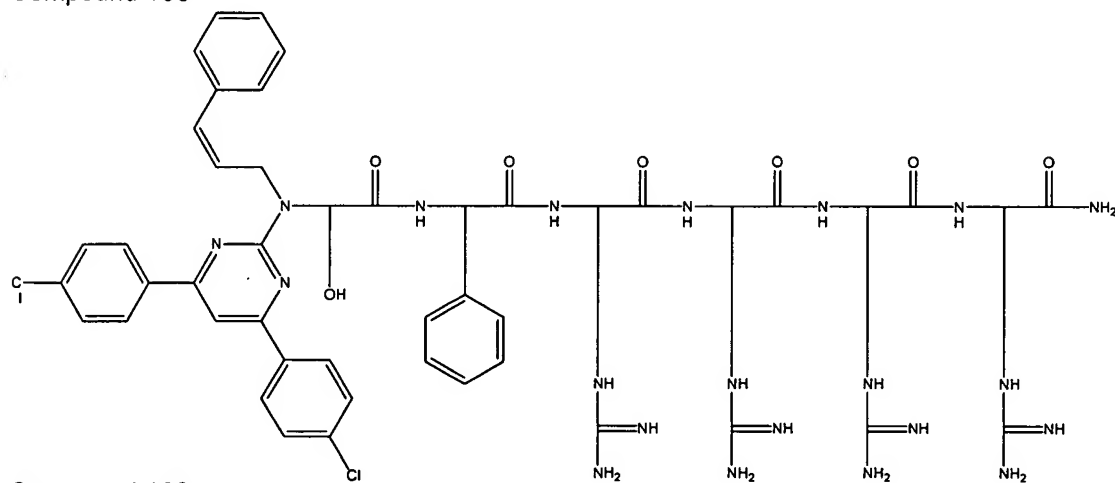
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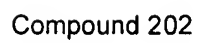


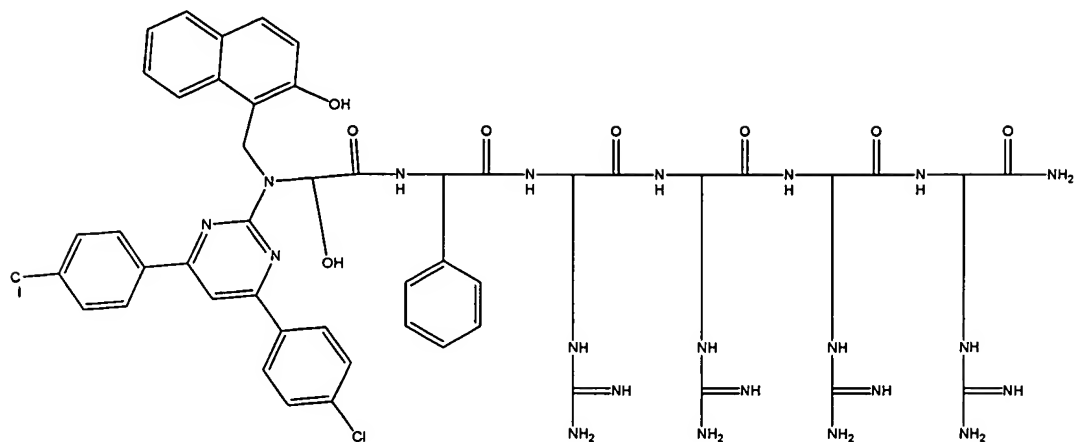
Compound 198



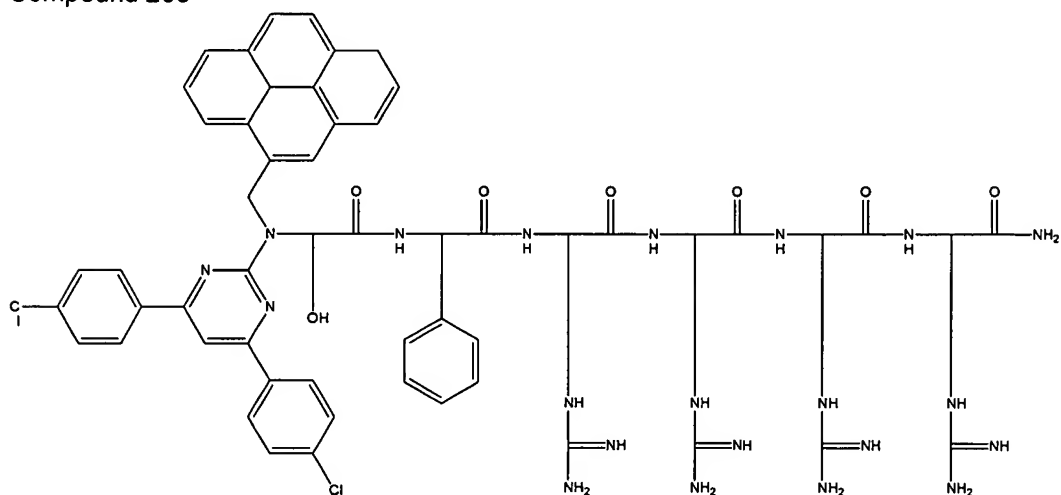
Compound 199

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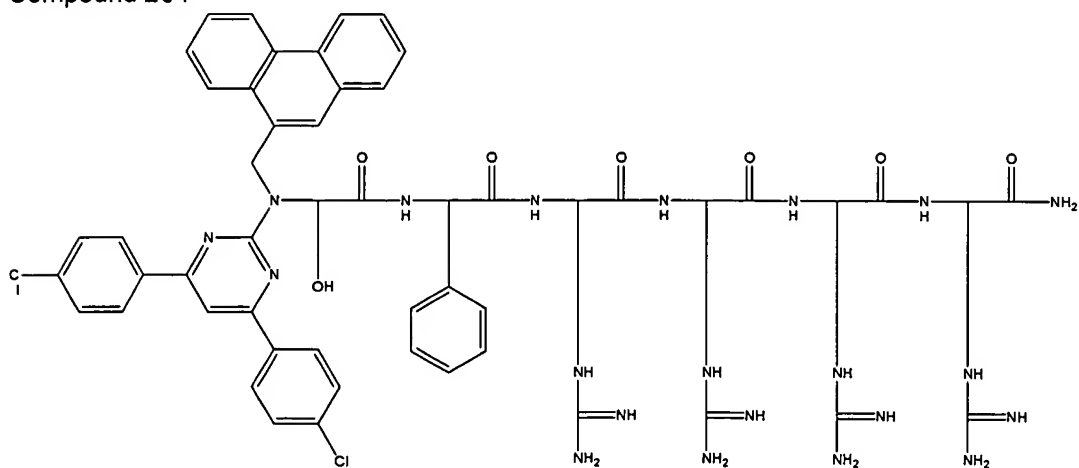




Compound 203

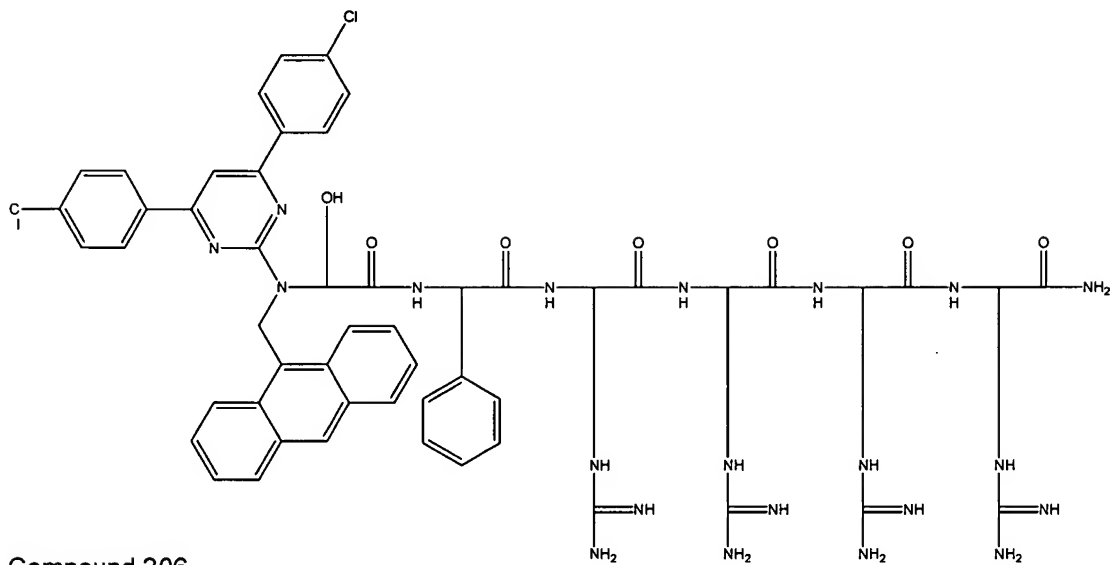


Compound 204

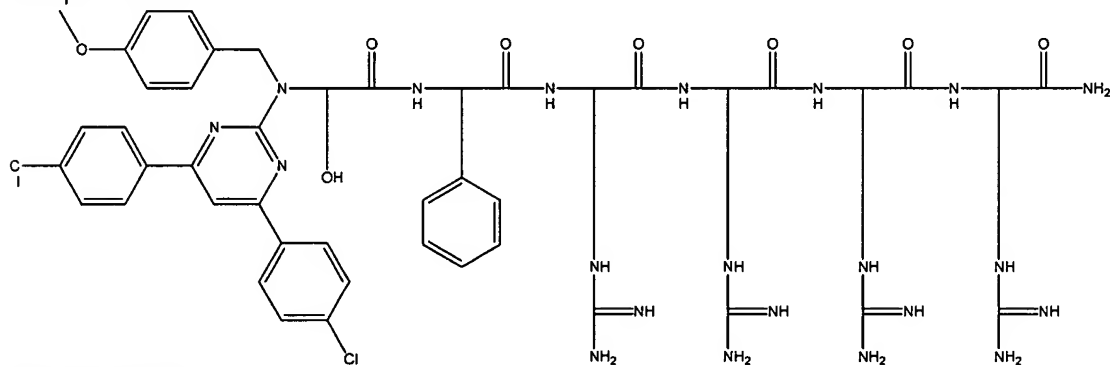


Compound 205

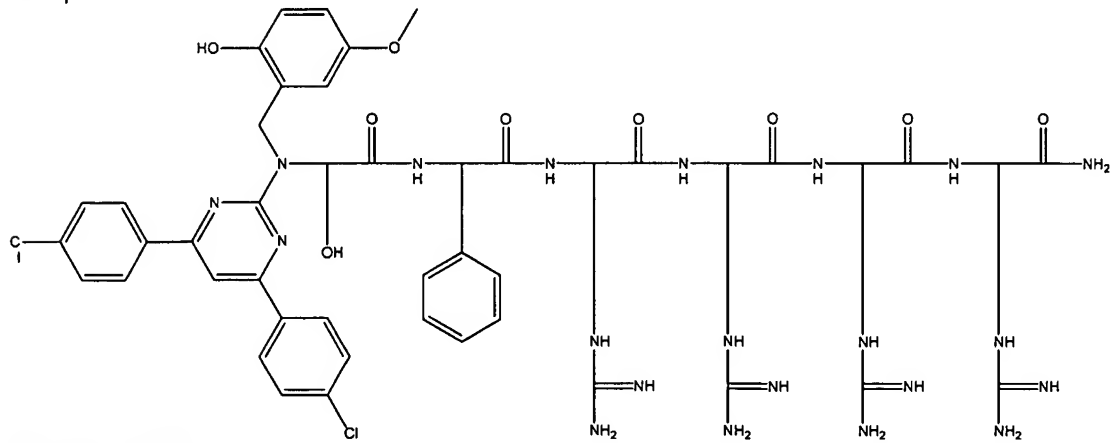
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Compound 206



Compound 207



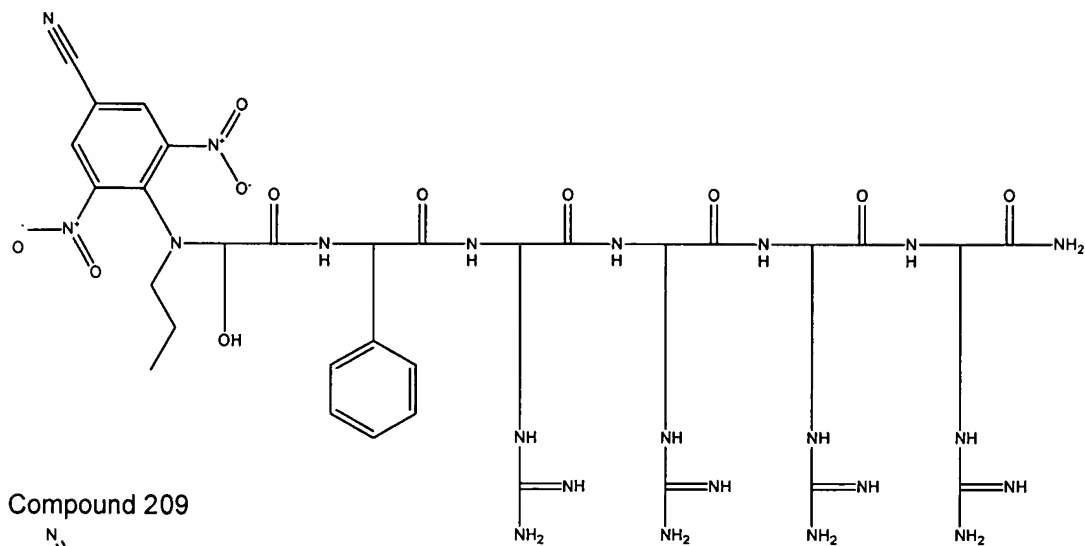
Compound 208

Applicant: David S. Lawrence

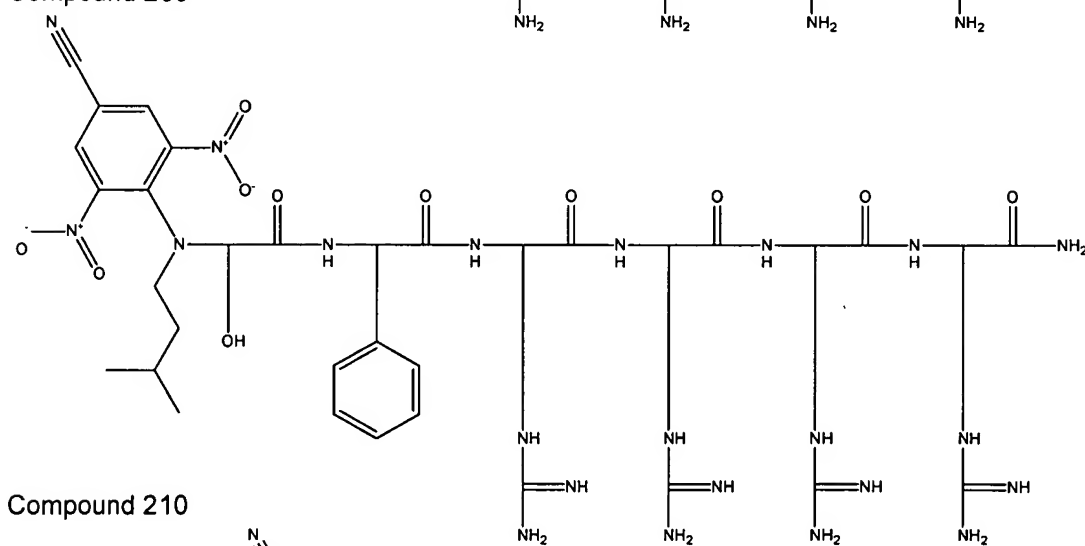
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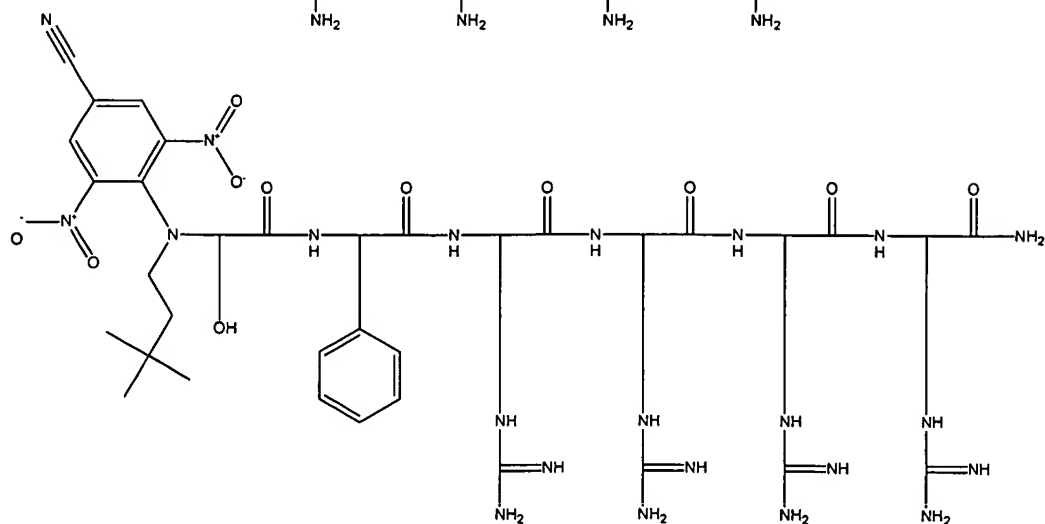


Compound 209

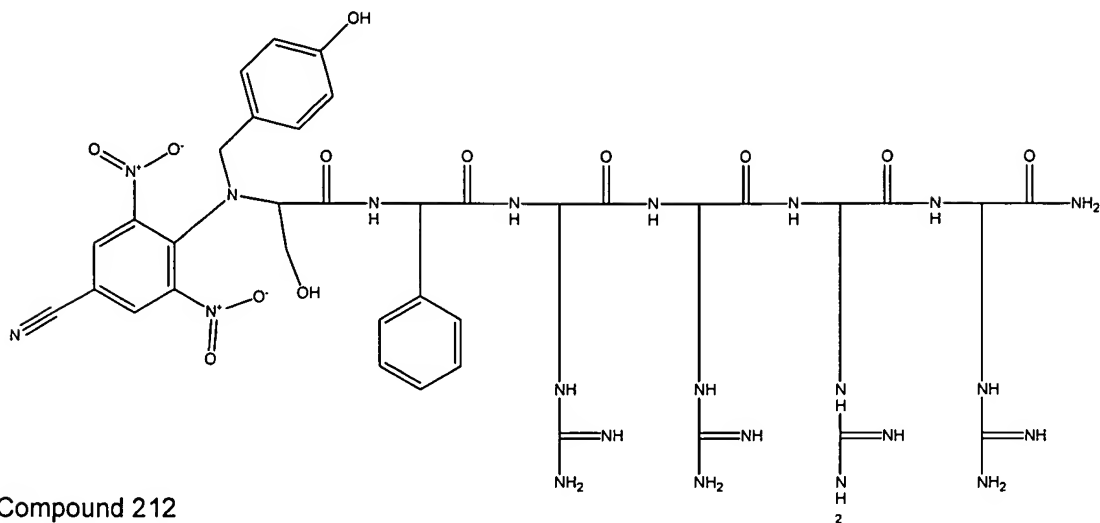


Compound 210

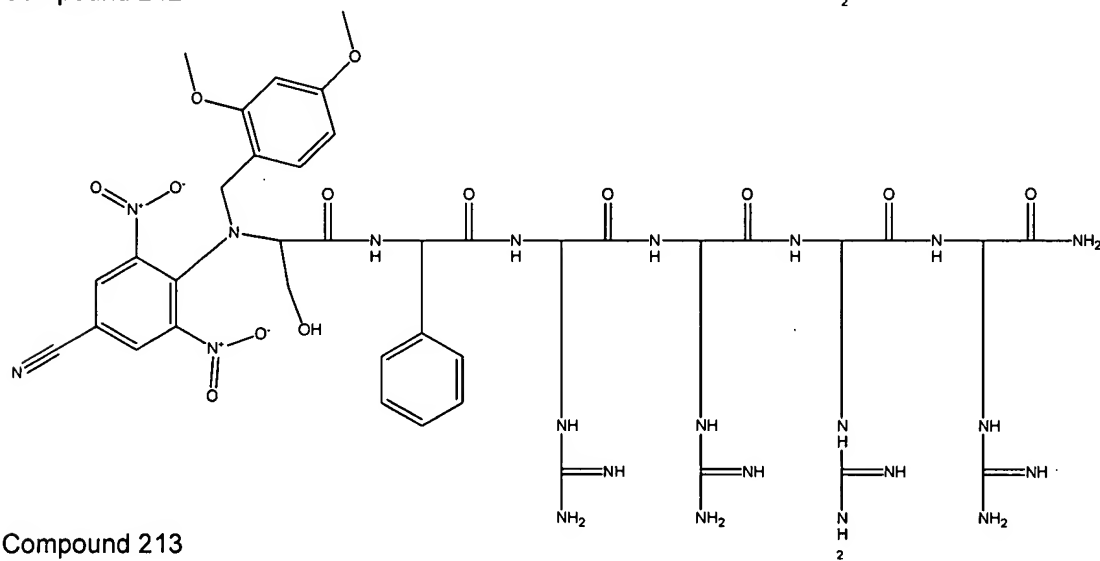
Compound 211



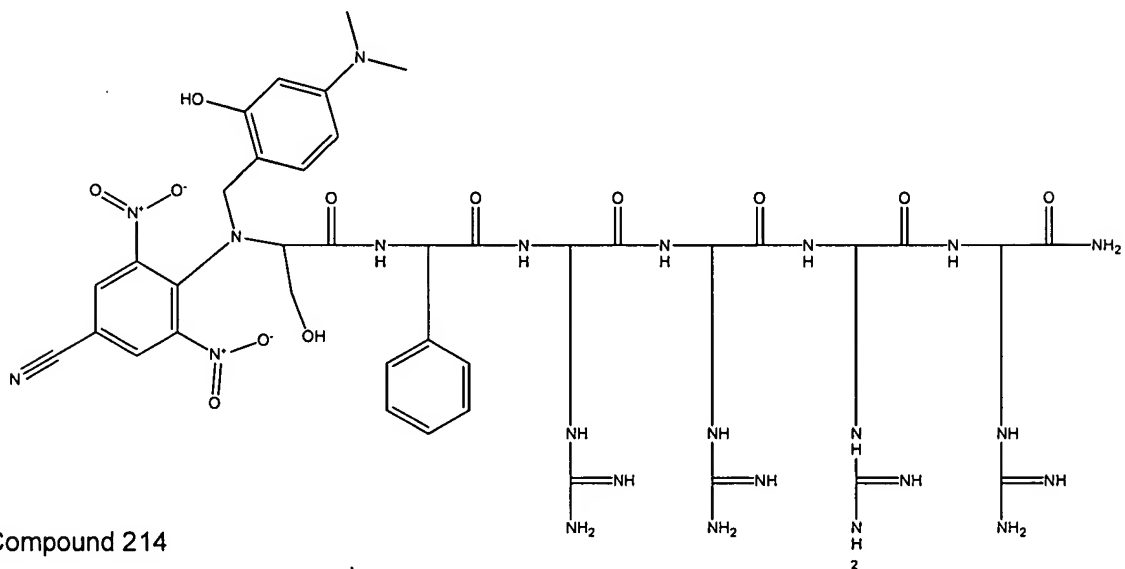
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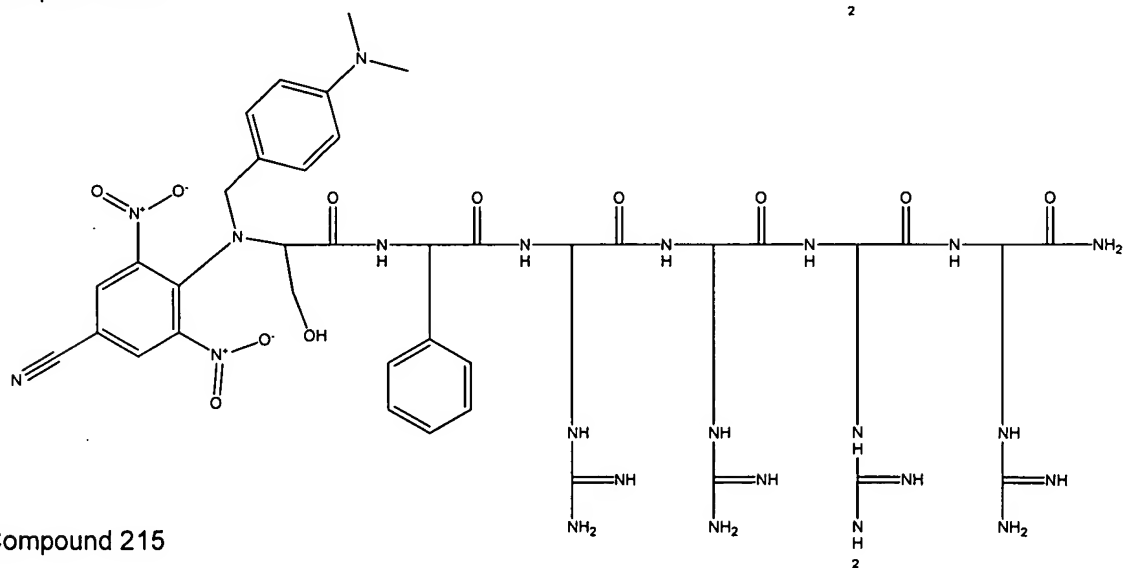
Compound 212



Compound 213

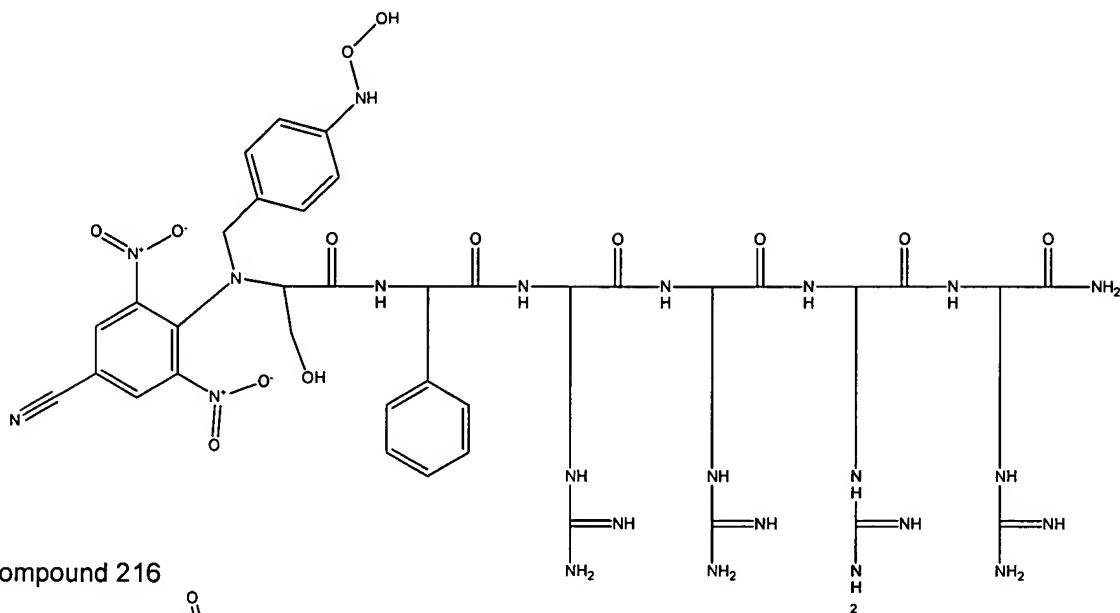


Compound 214

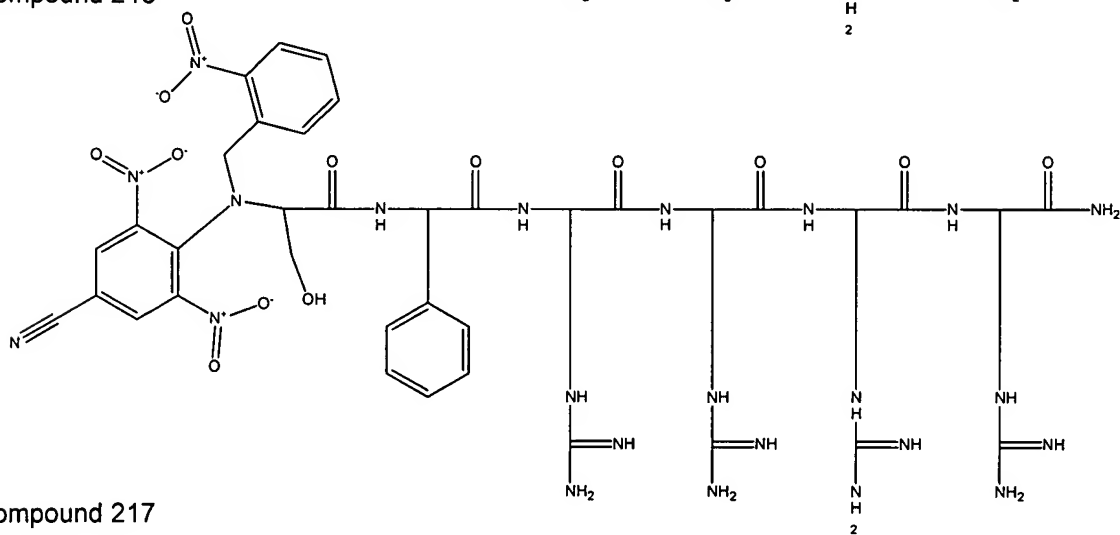


Compound 215

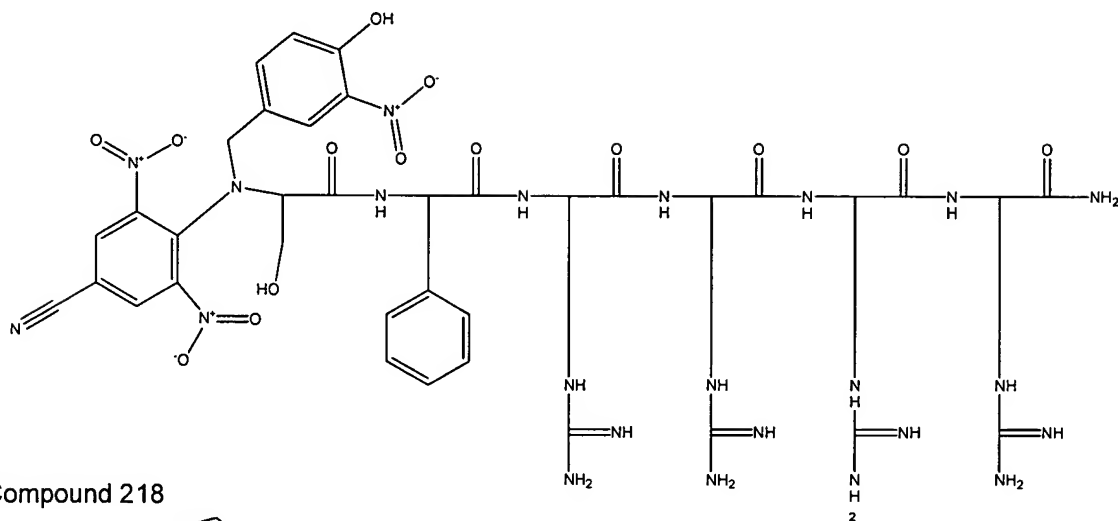
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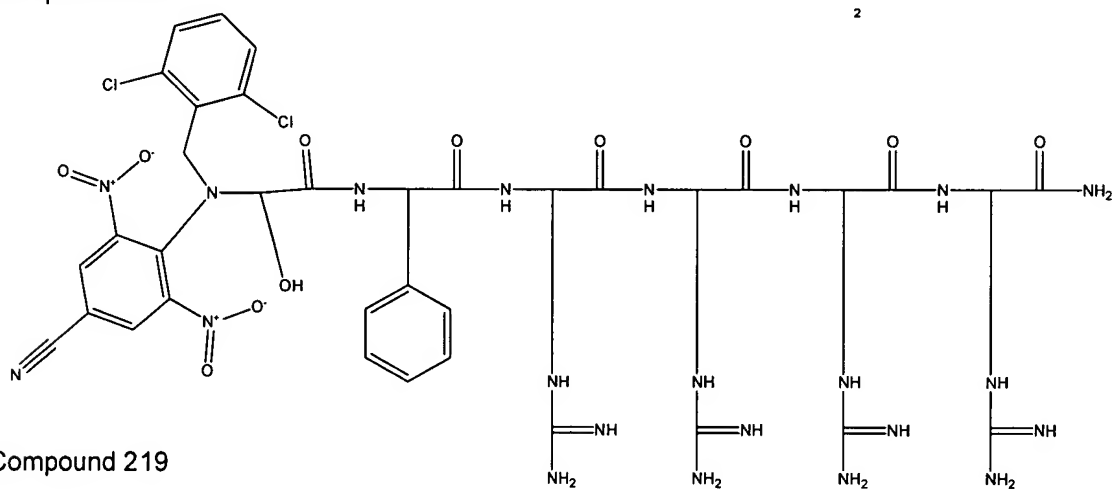
Compound 216



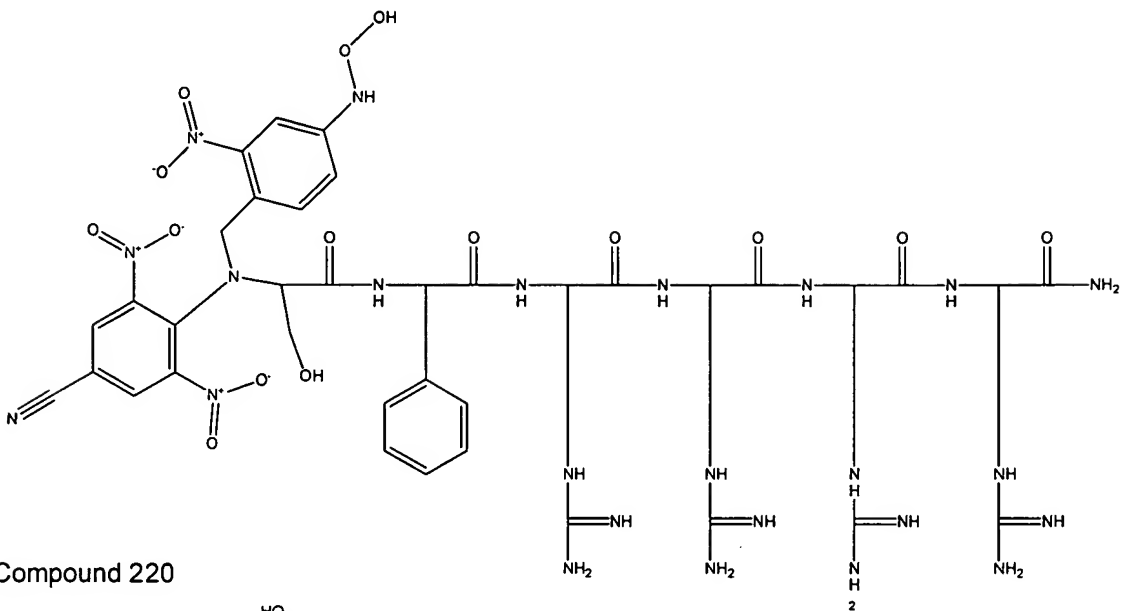
Compound 217



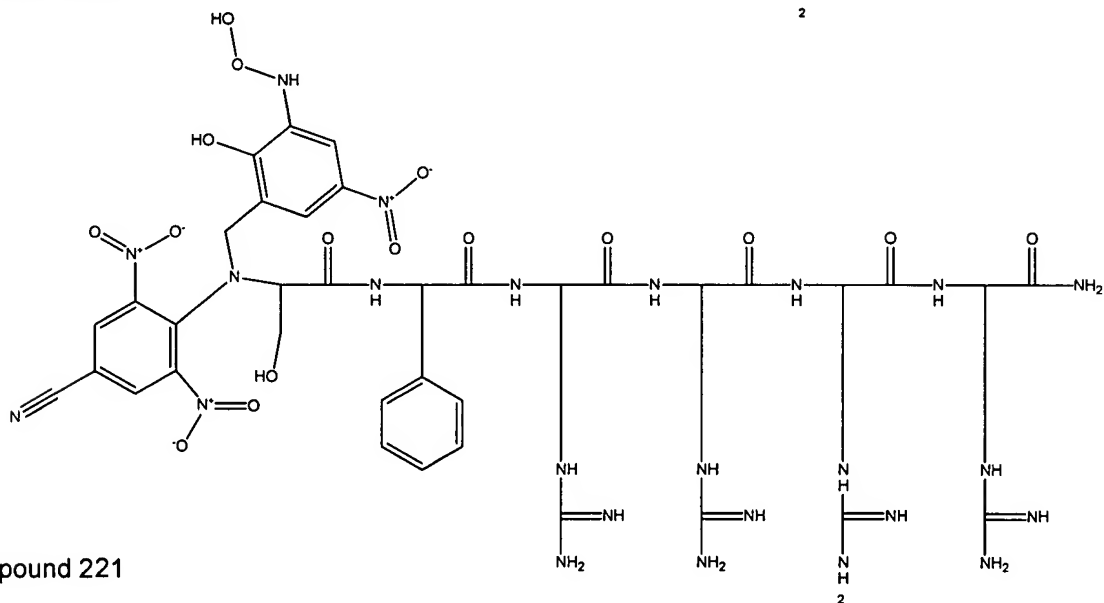
Compound 218



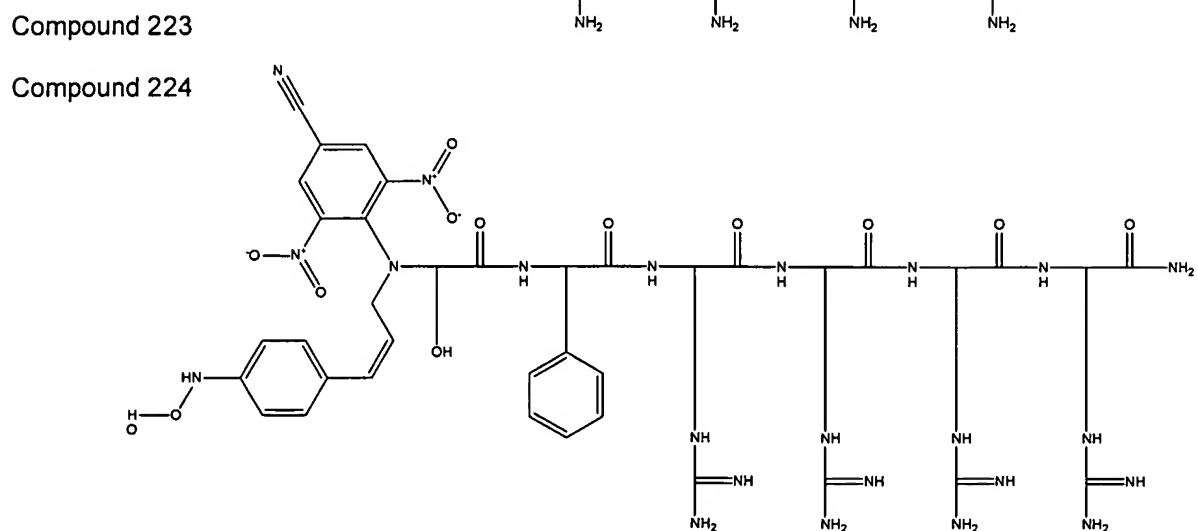
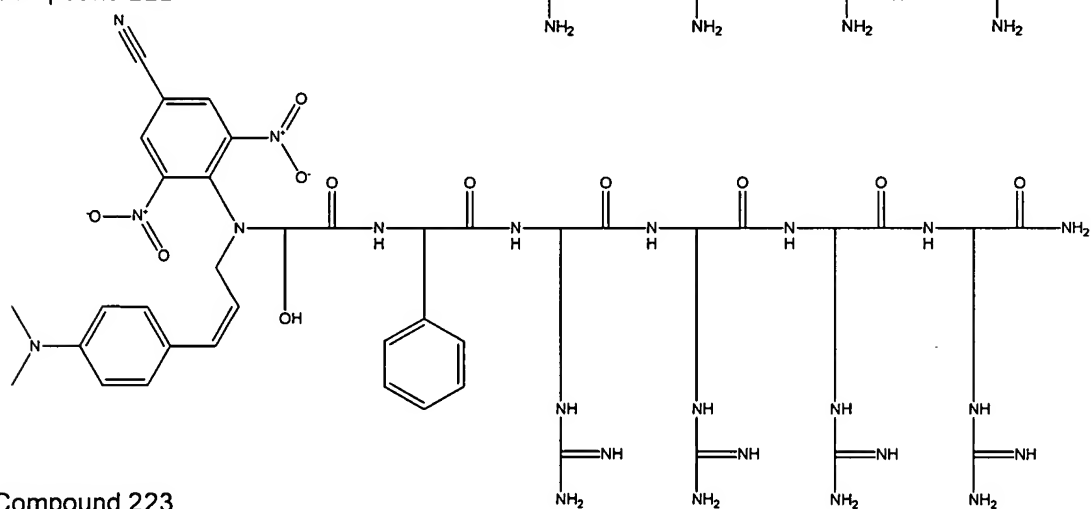
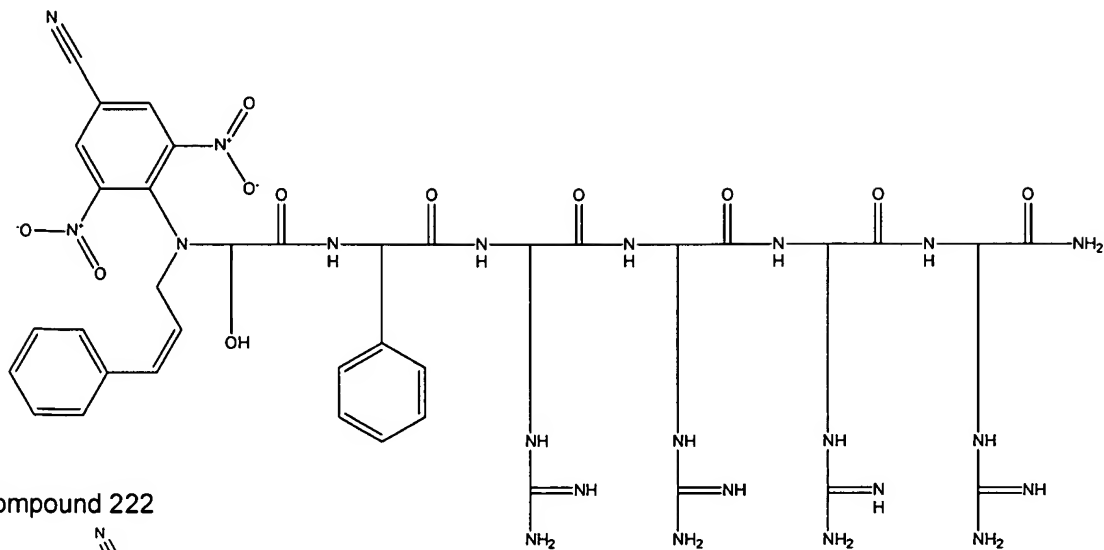
Compound 219

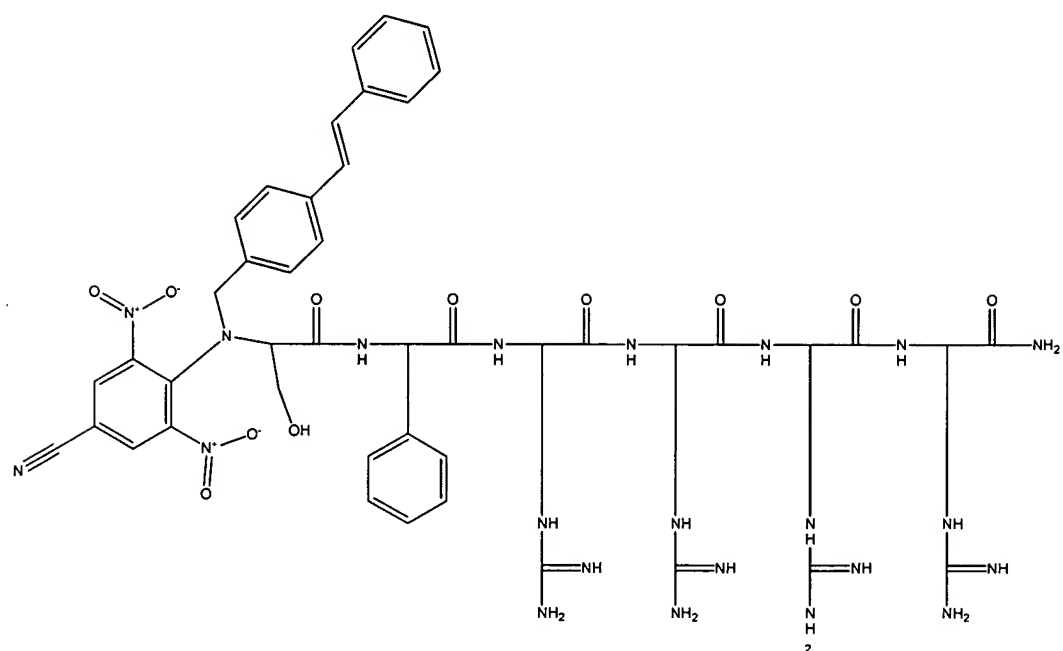


Compound 220

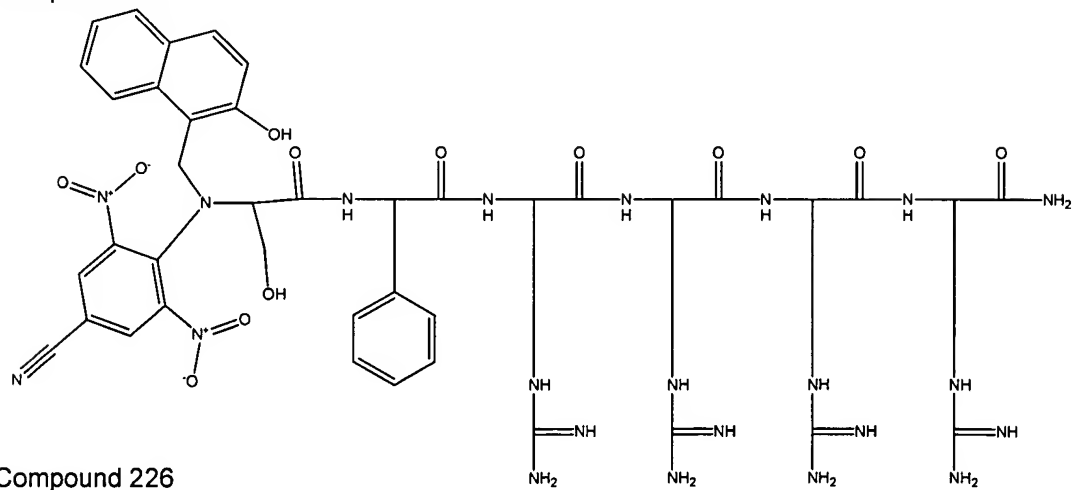


Compound 221

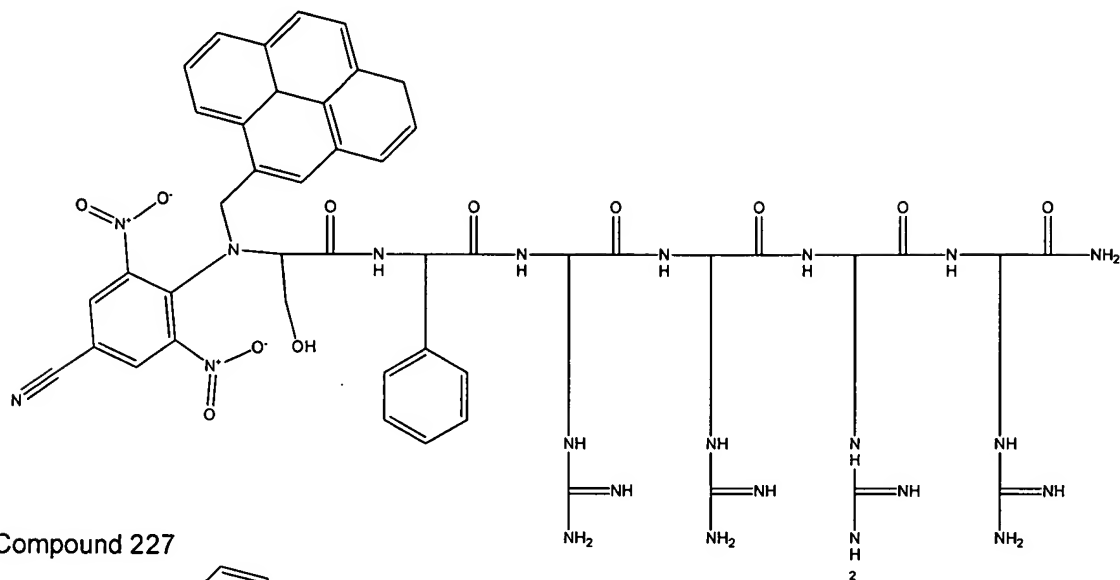




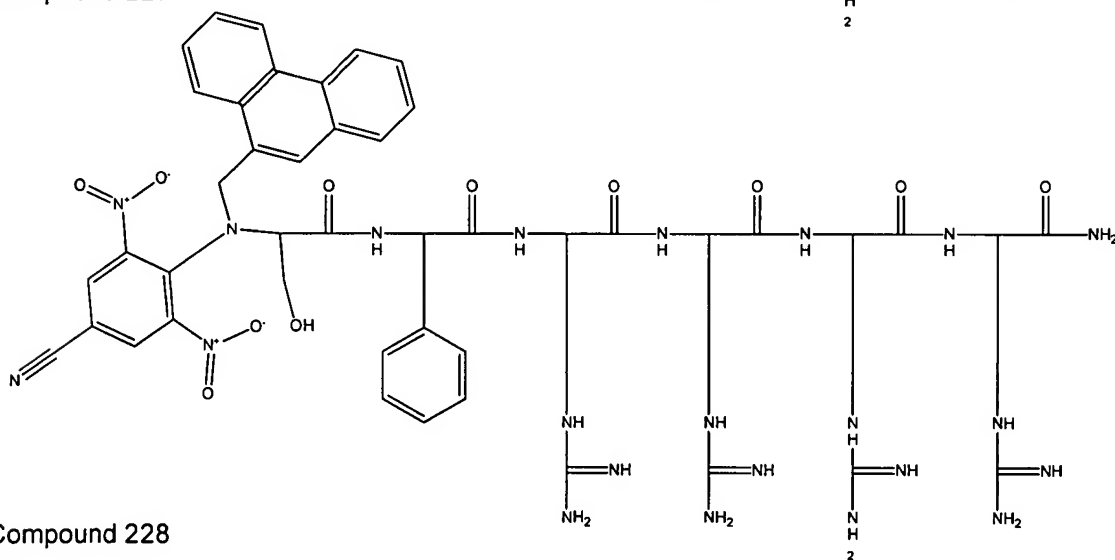
Compound 225



Compound 226

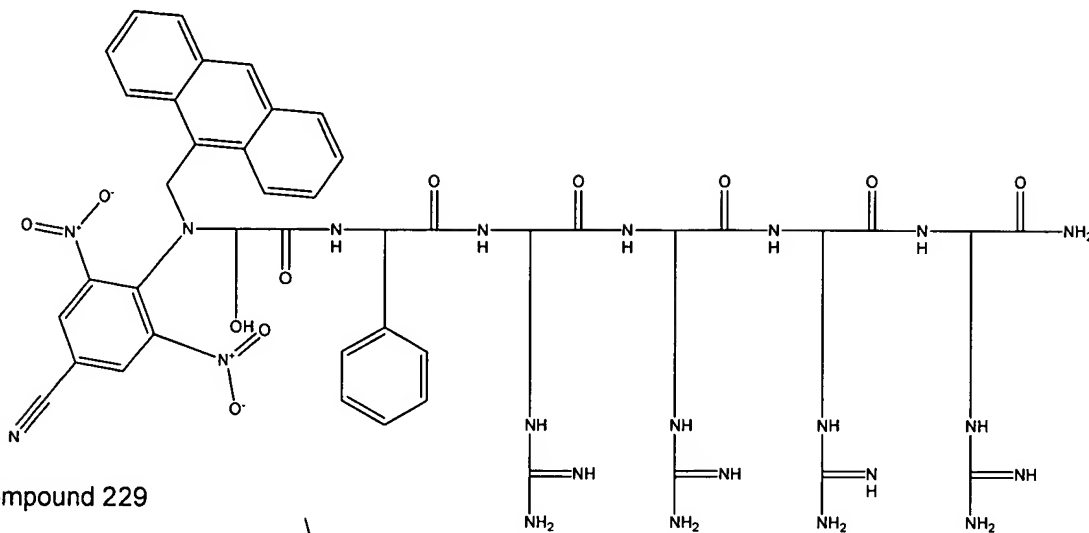


Compound 227

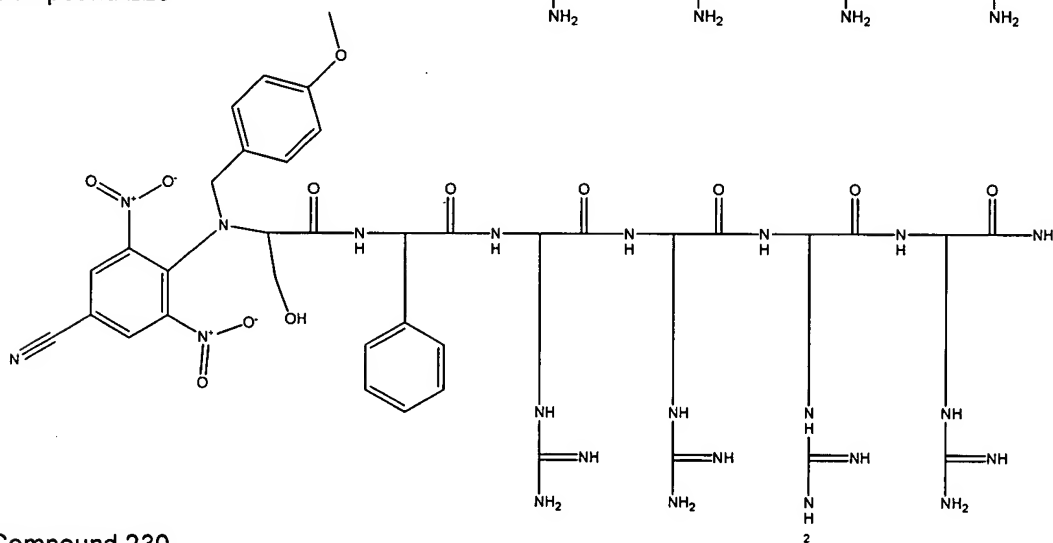


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Compound 229



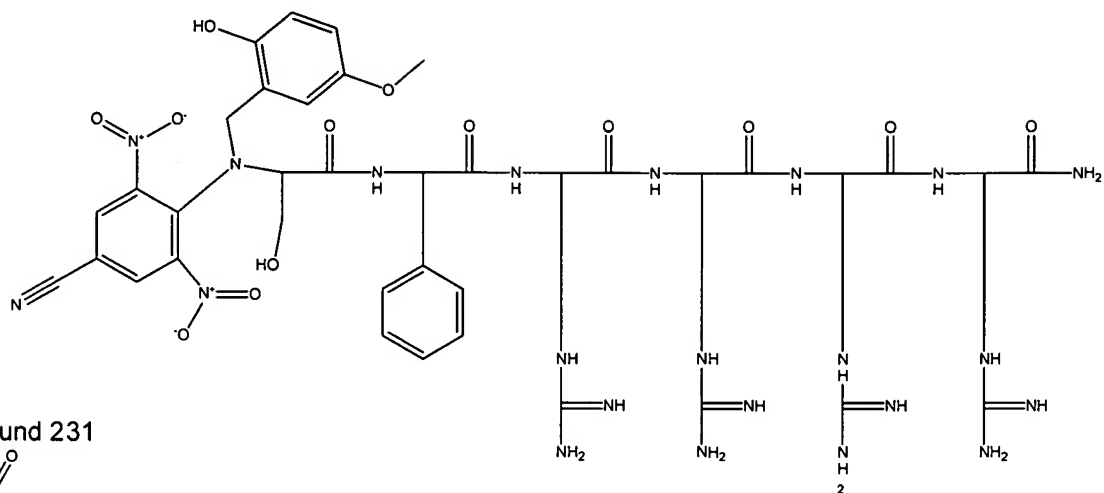
Compound 230

Applicant: David S. Lawrence

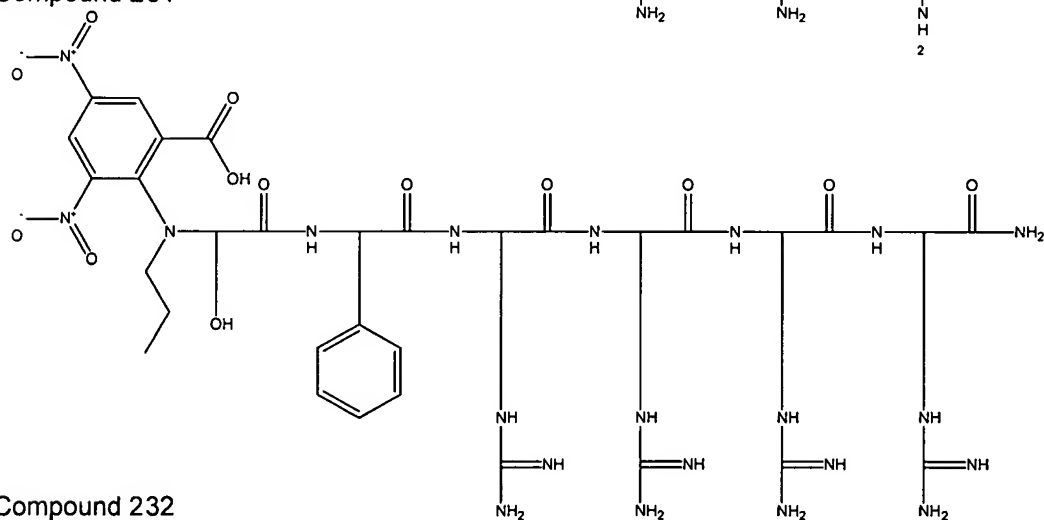
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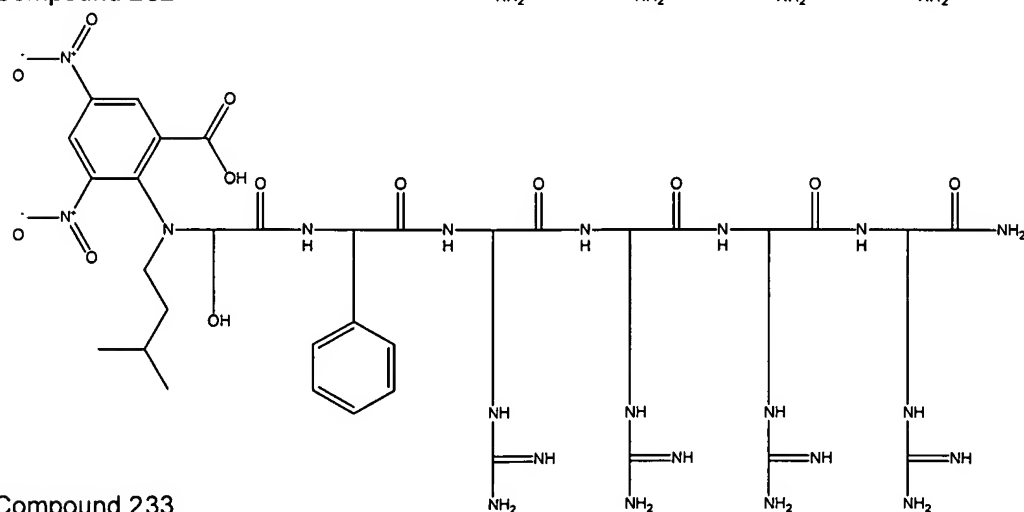
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Compound 231

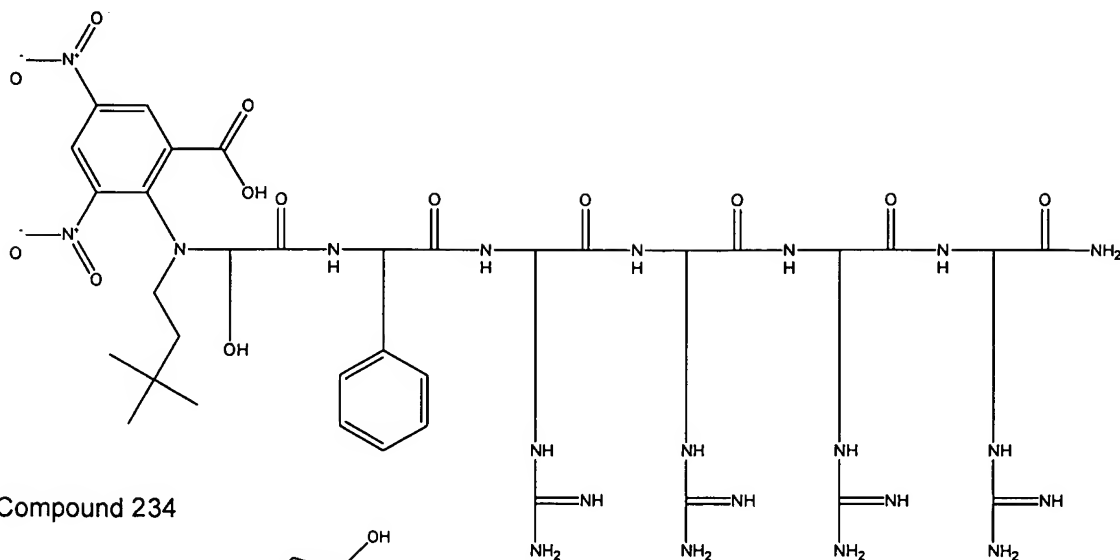


Compound 232

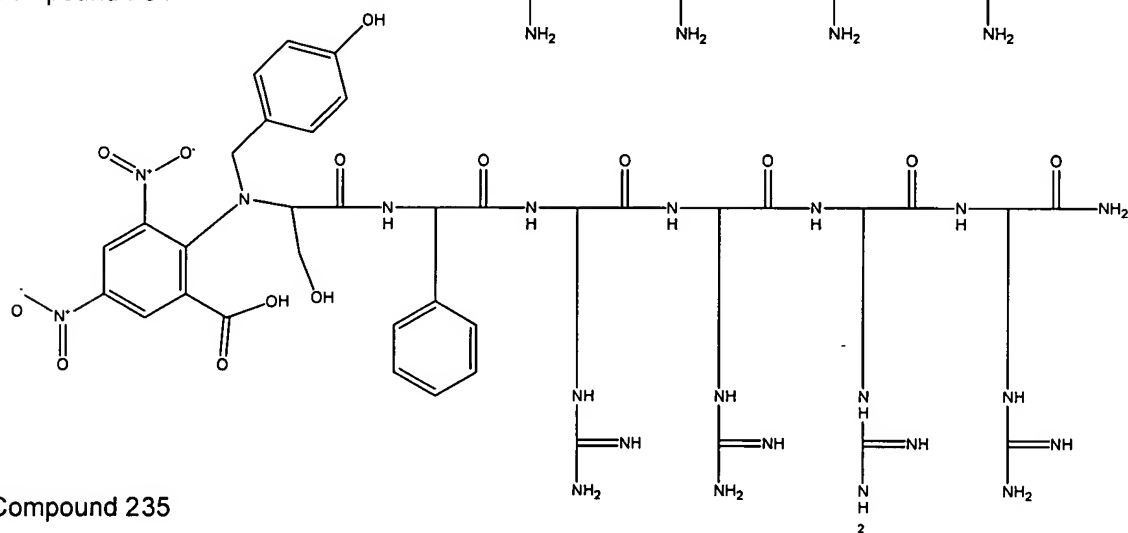


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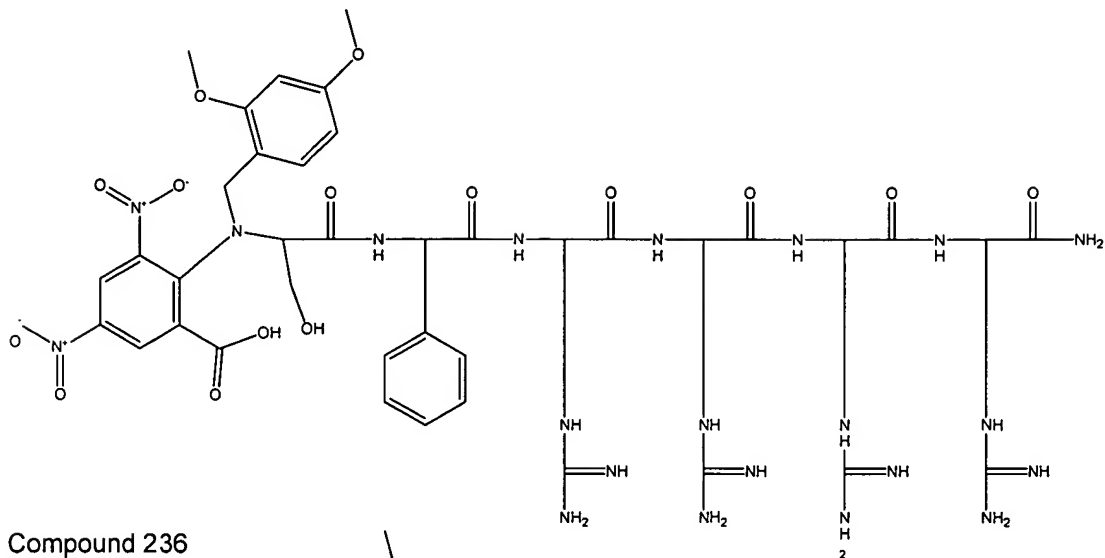


Compound 234

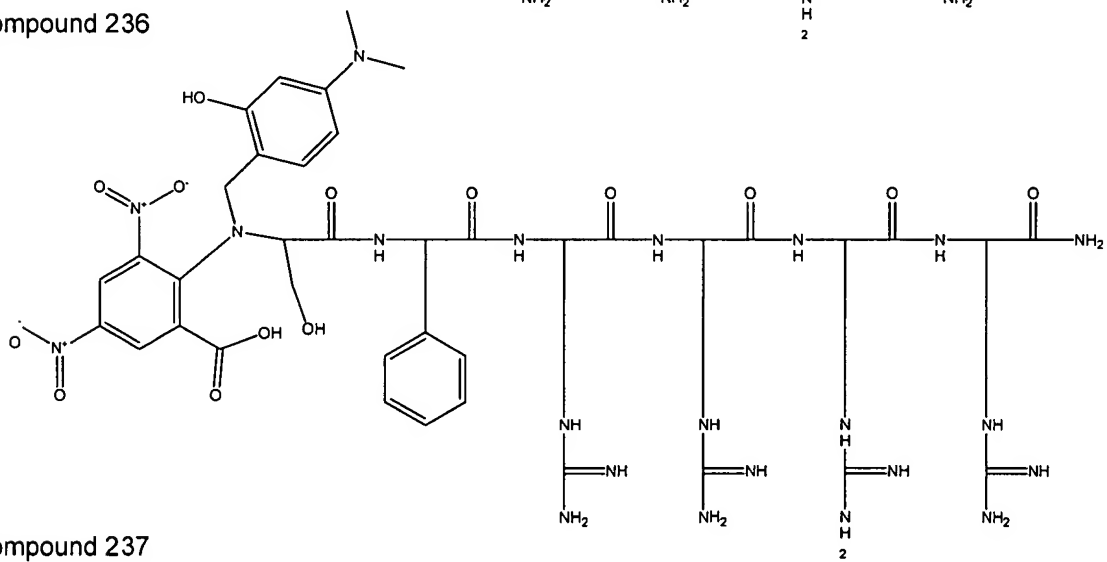


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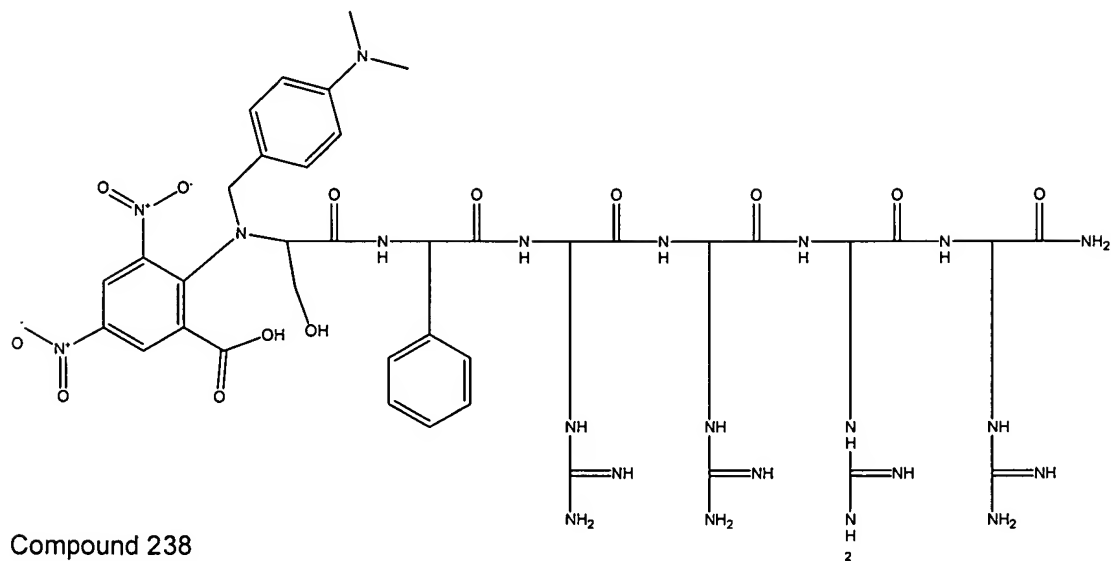


Compound 236

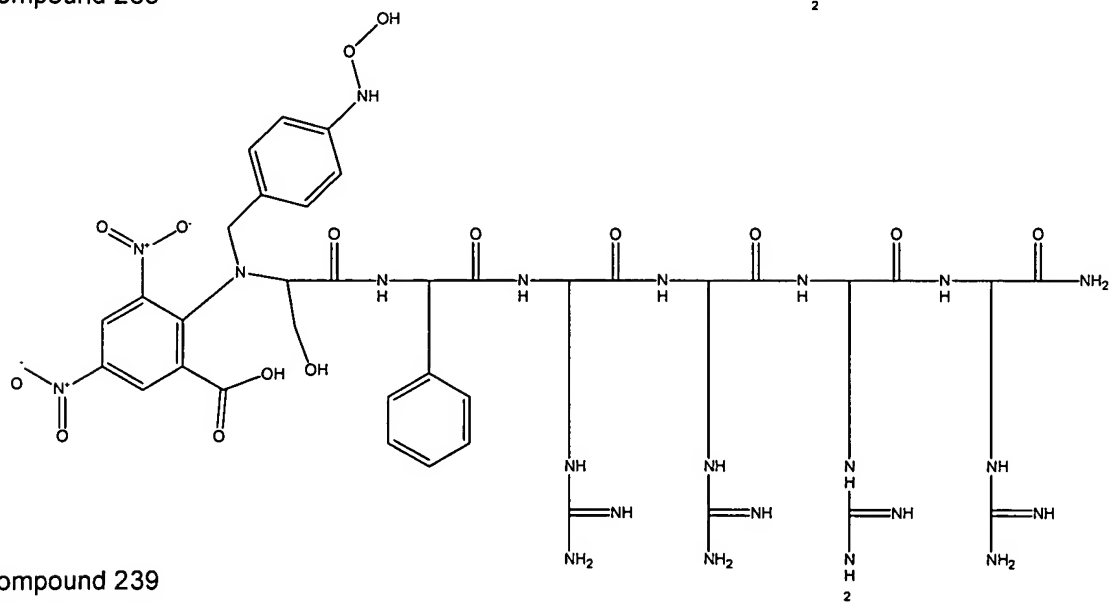


Compound 237

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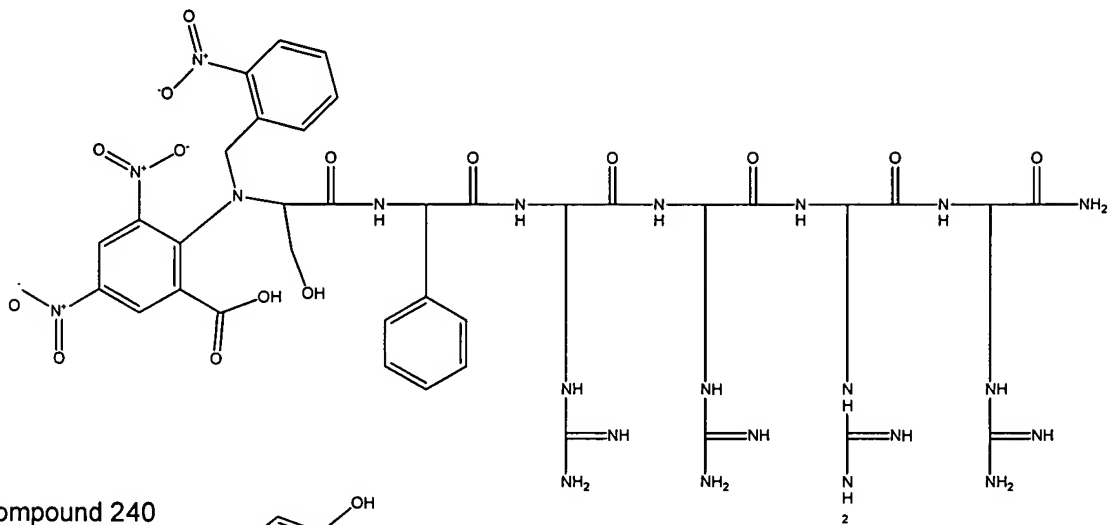


Compound 238

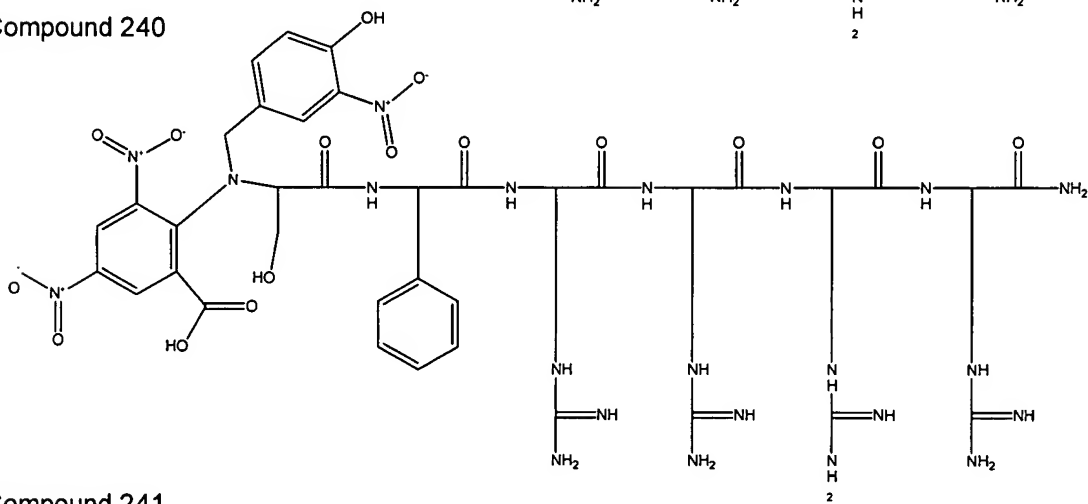


Compound 239

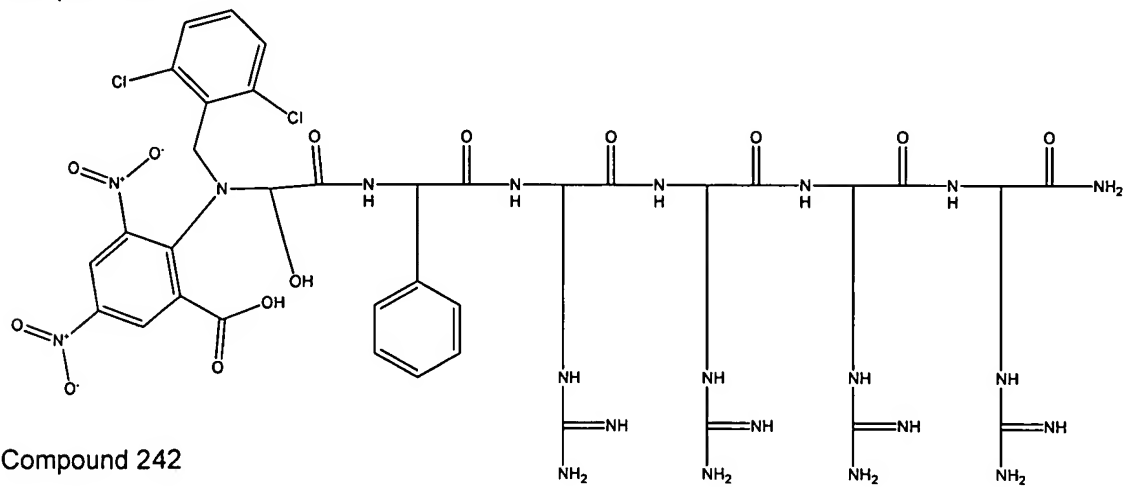
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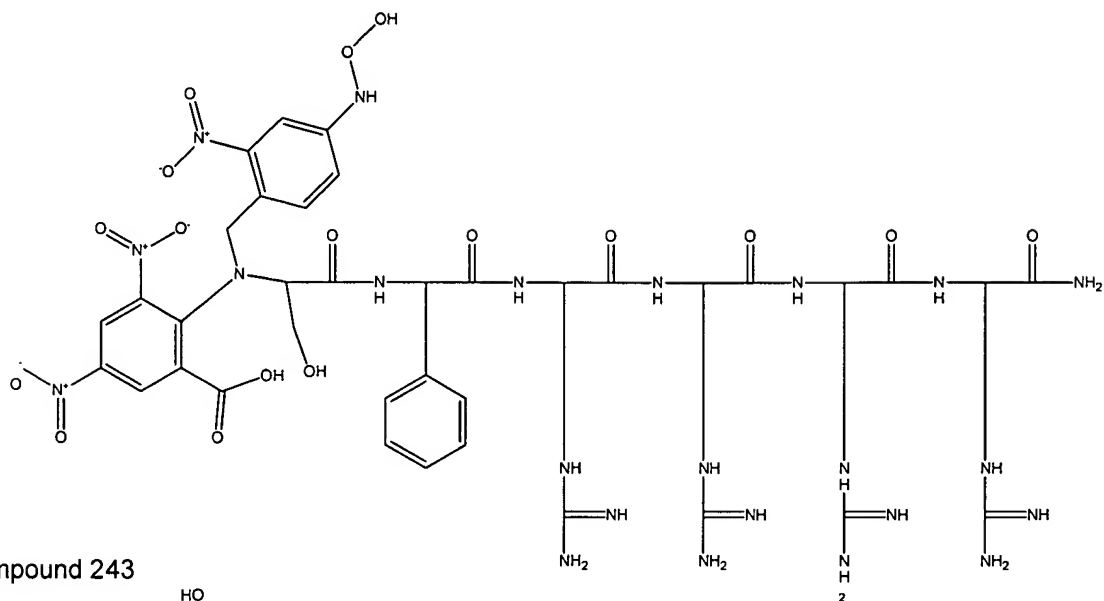
Compound 240



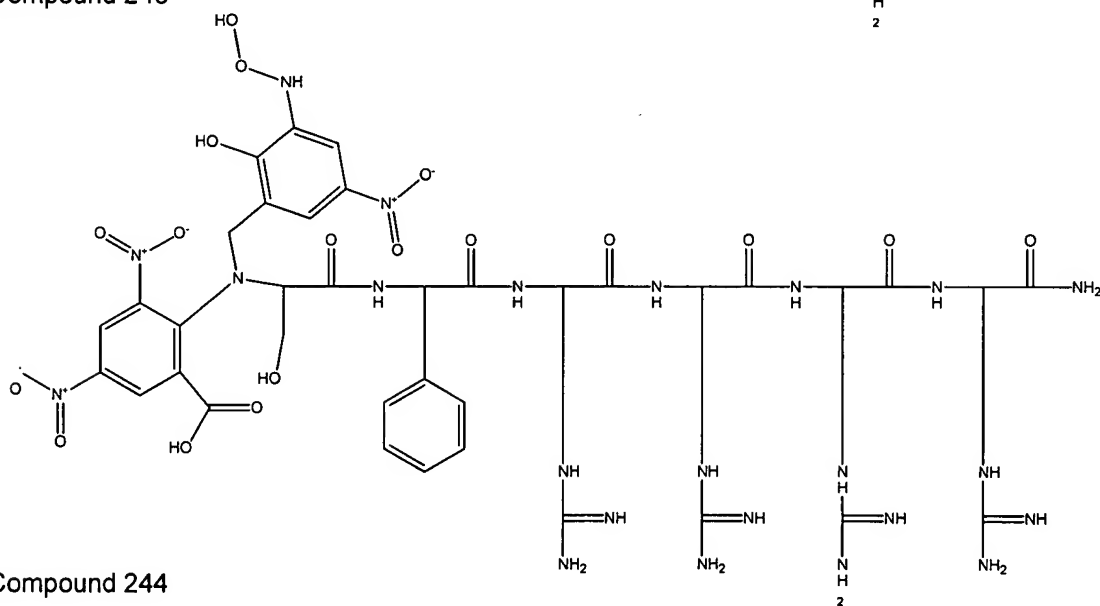
Compound 241



Compound 242

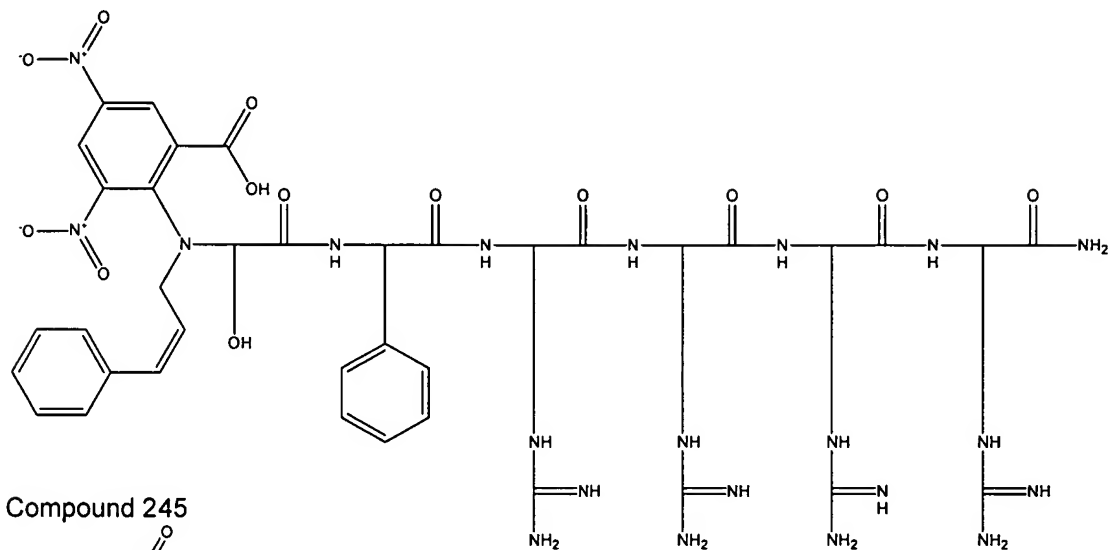


Compound 243

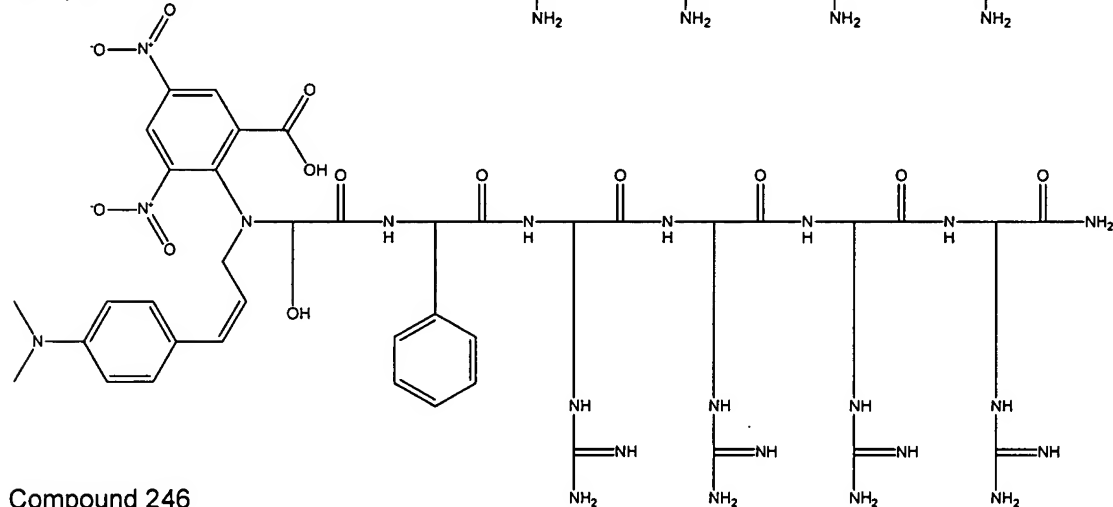


Compound 244

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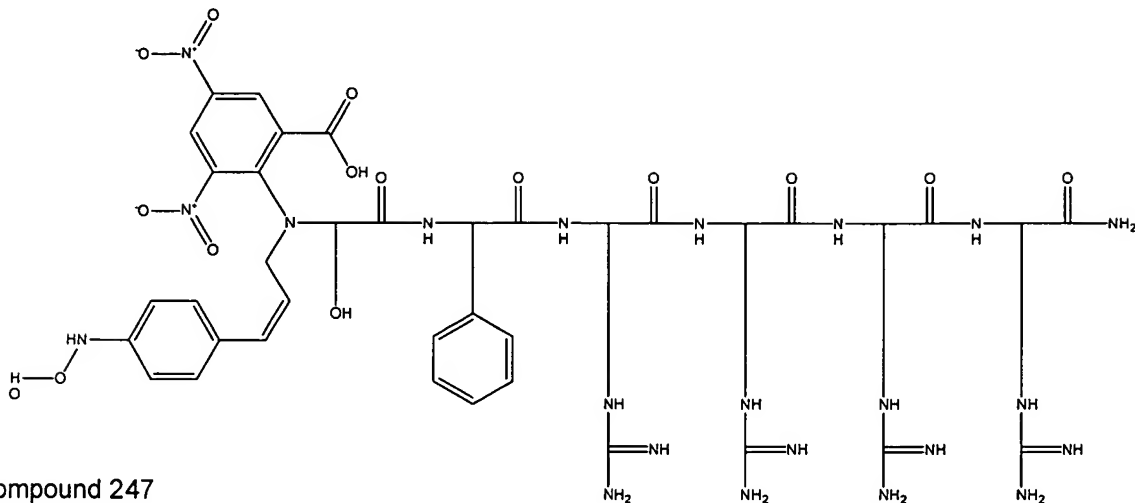


Compound 245

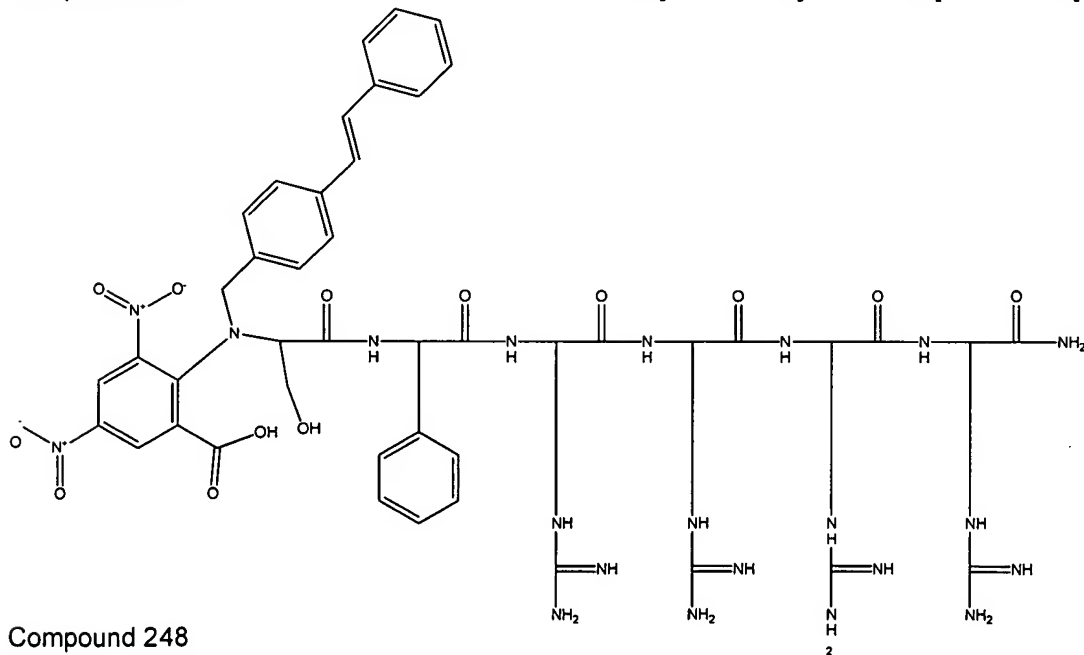


Compound 246

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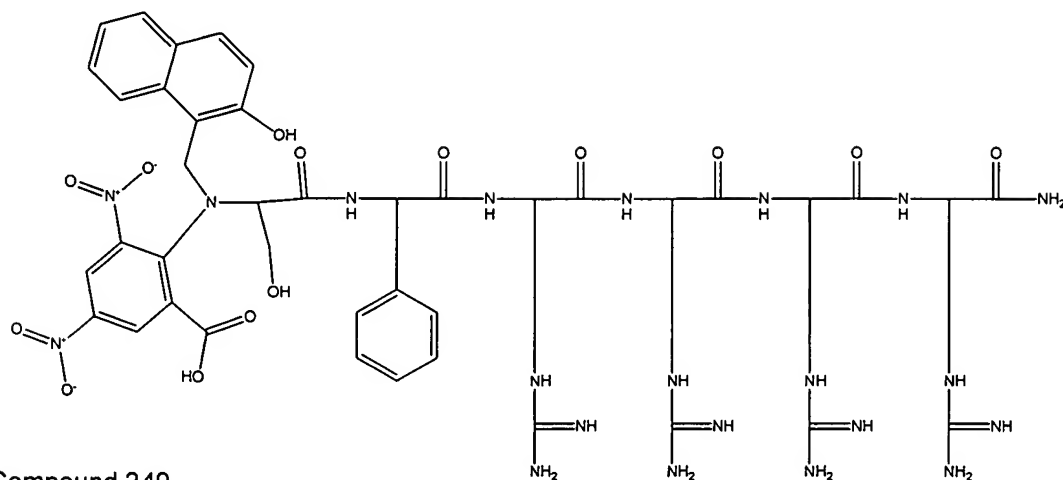


Compound 247

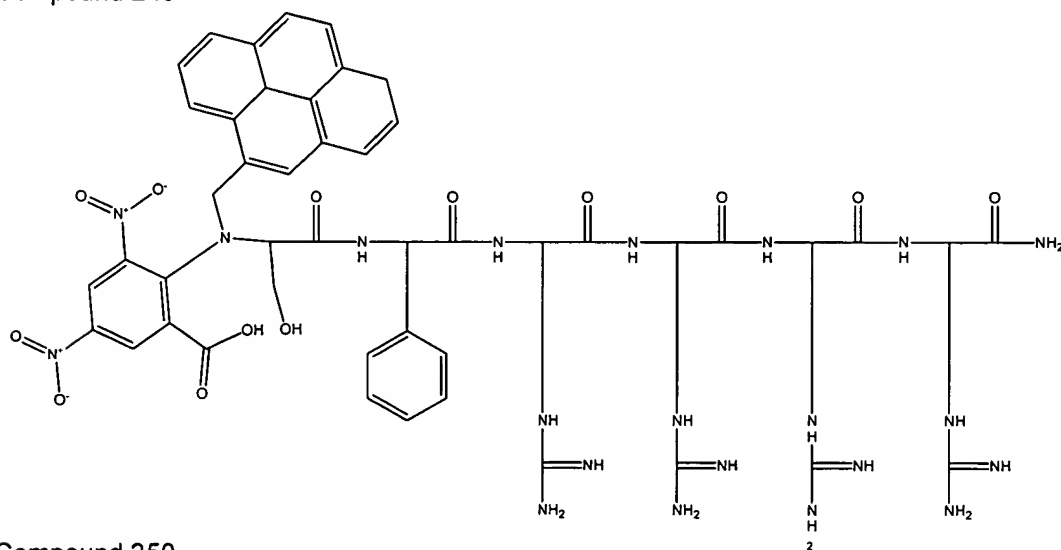


Compound 248

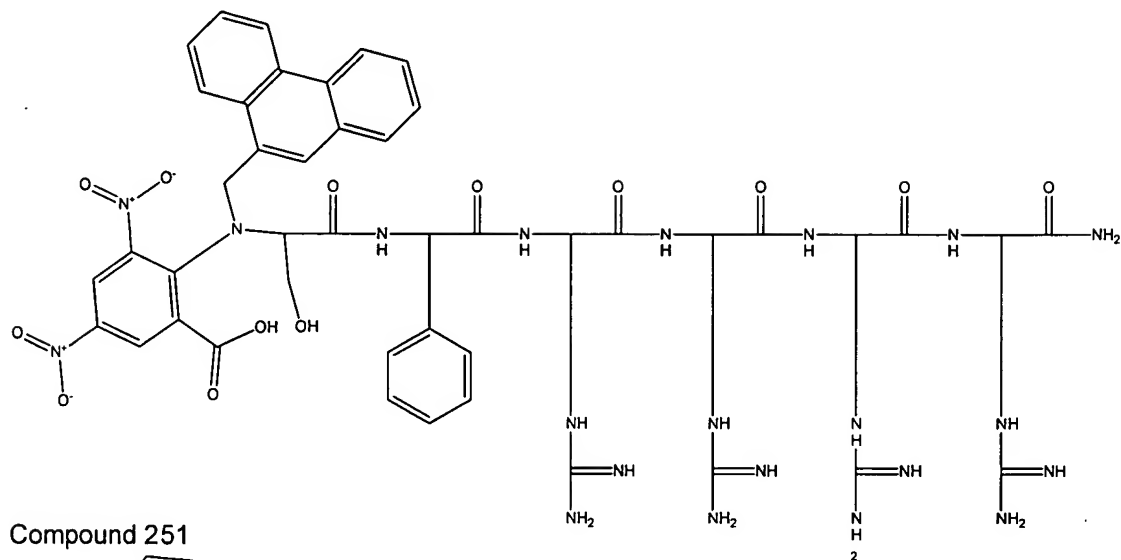
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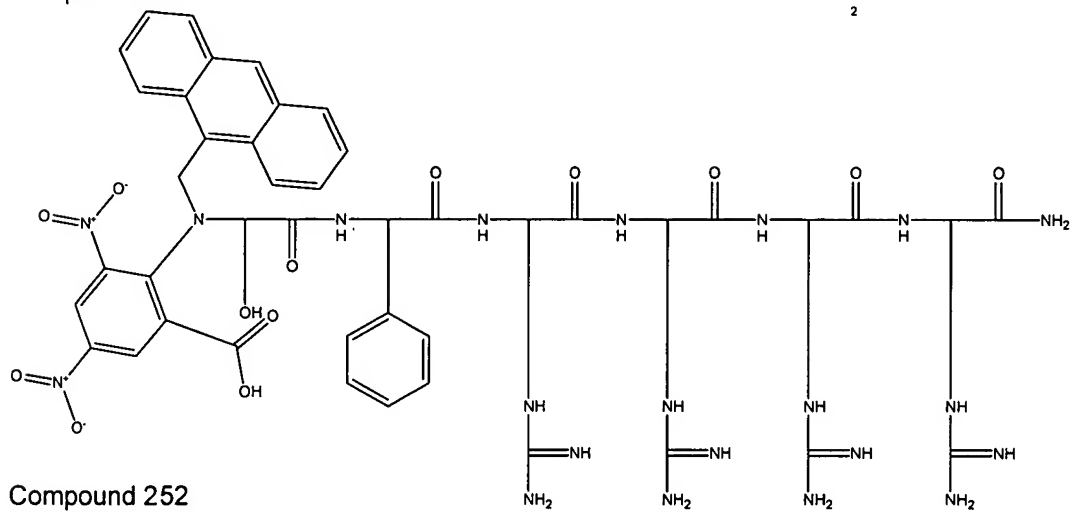
Compound 249



Compound 250



Compound 251

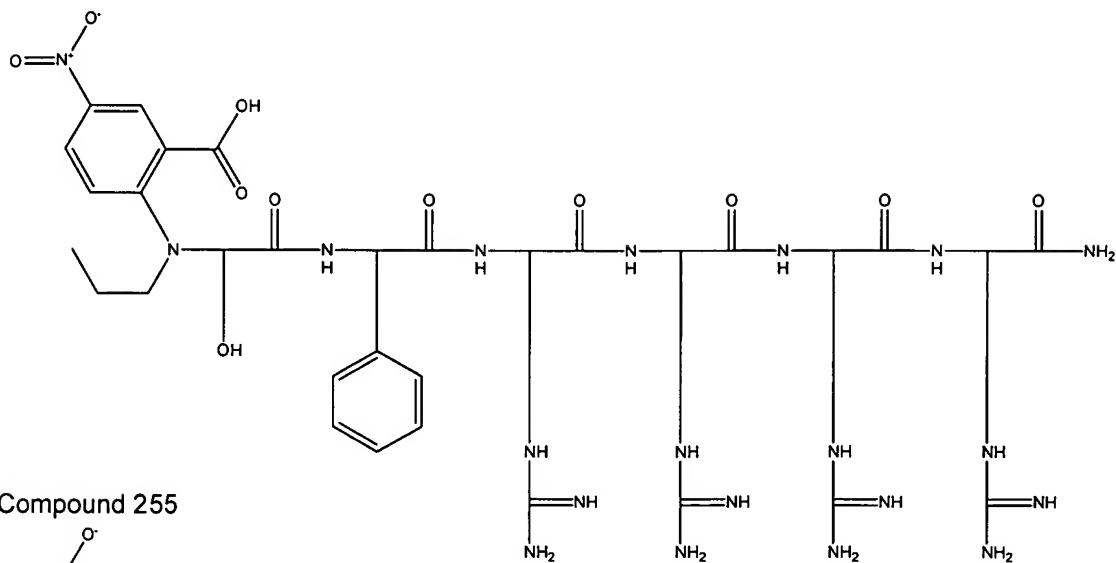


Compound 252

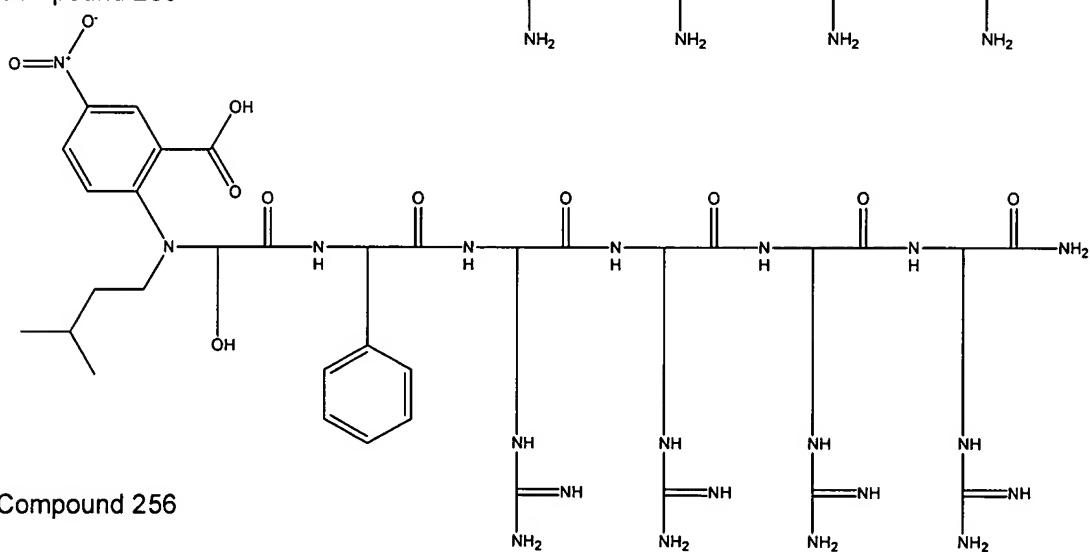
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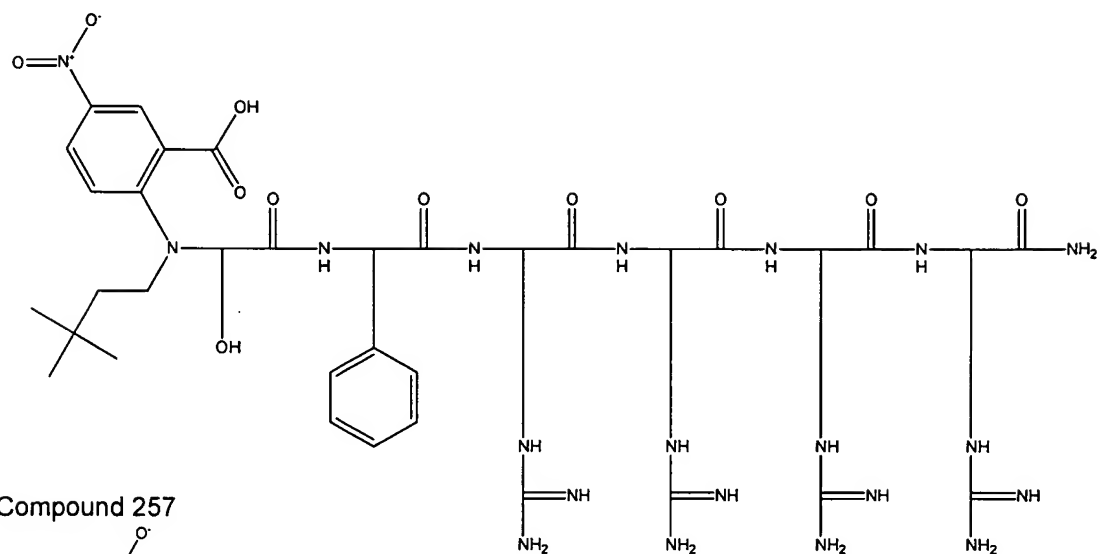


Compound 255

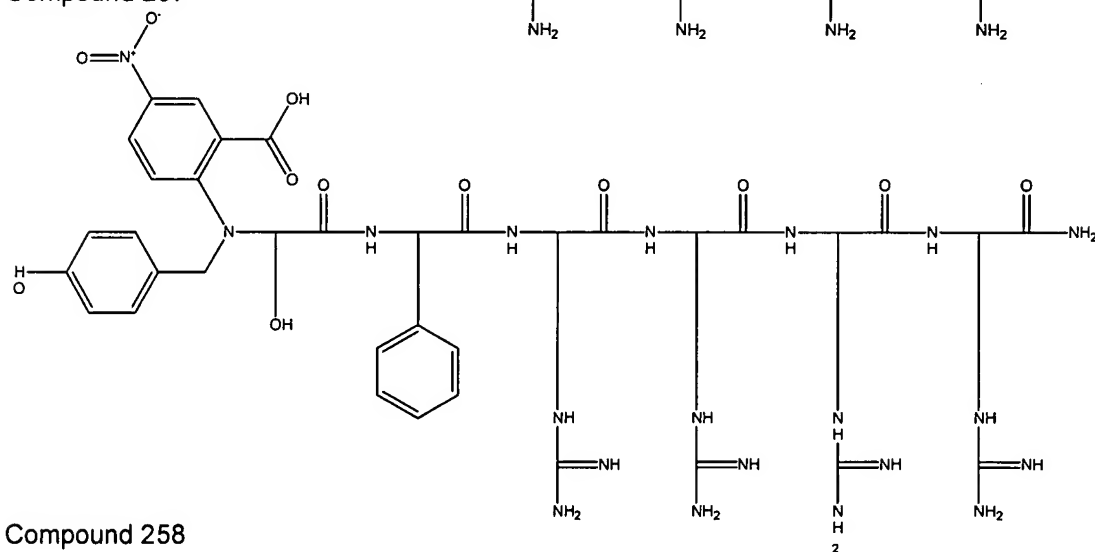


Compound 256

418197.1

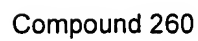


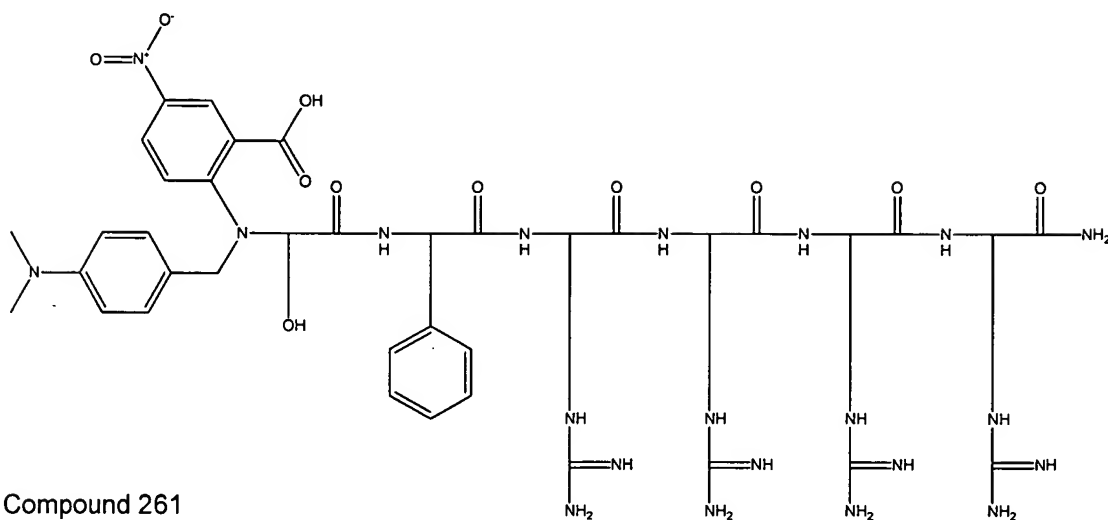
Compound 257



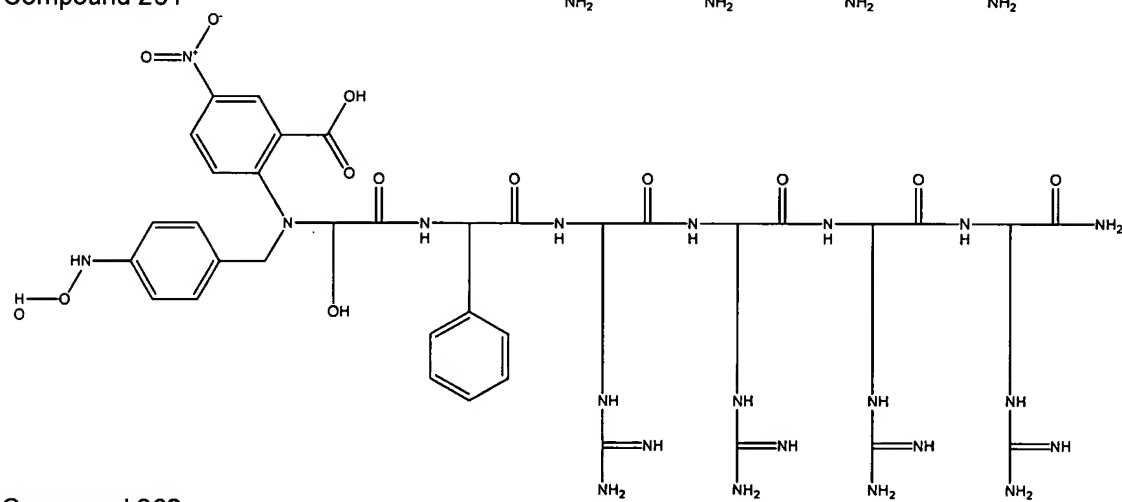
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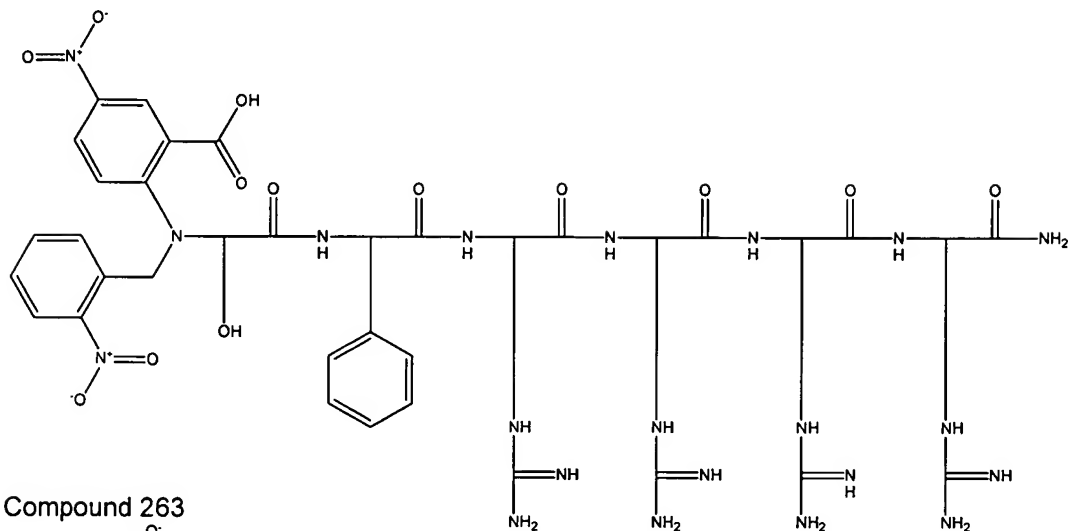


Compound 261

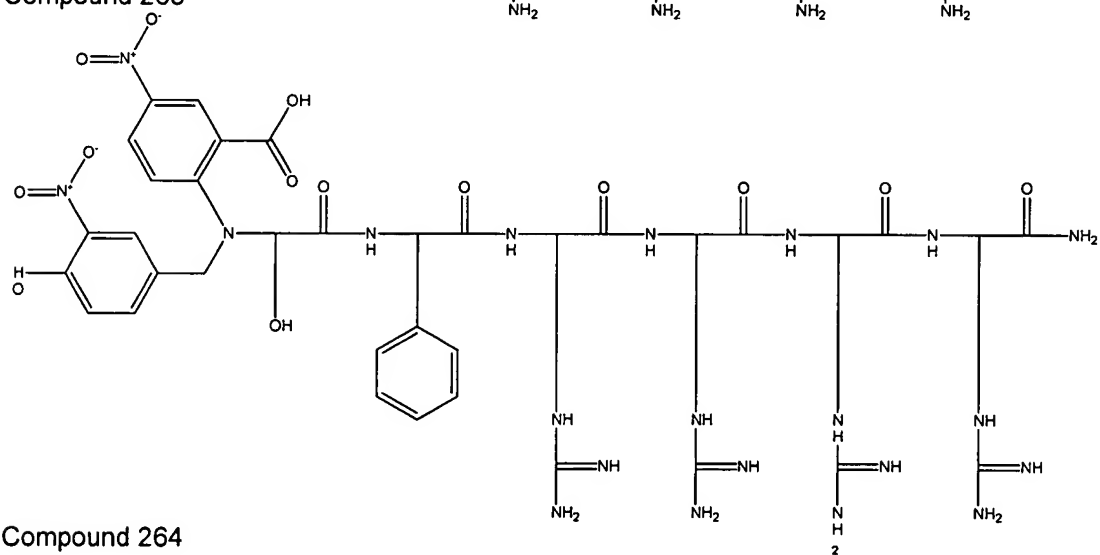


Compound 262

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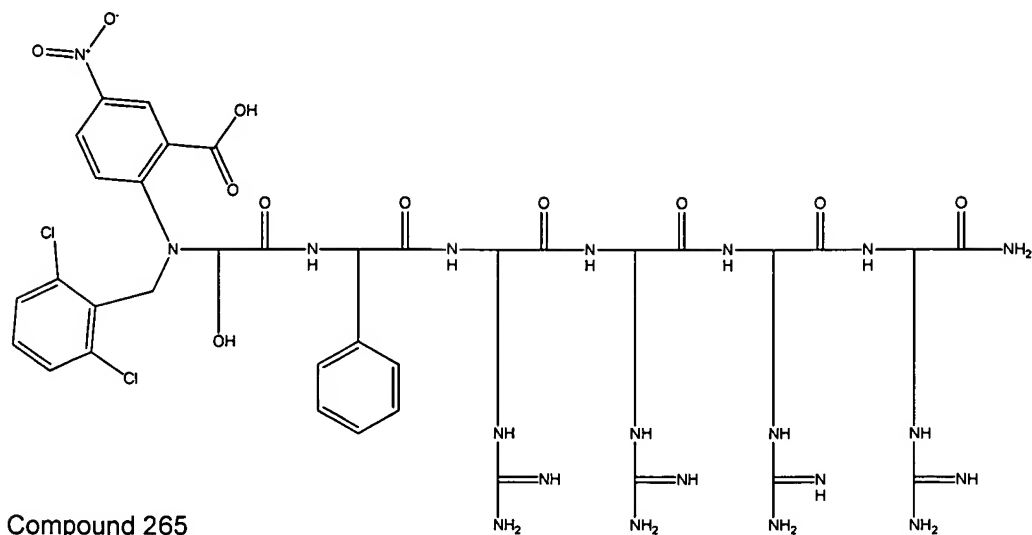


Compound 263

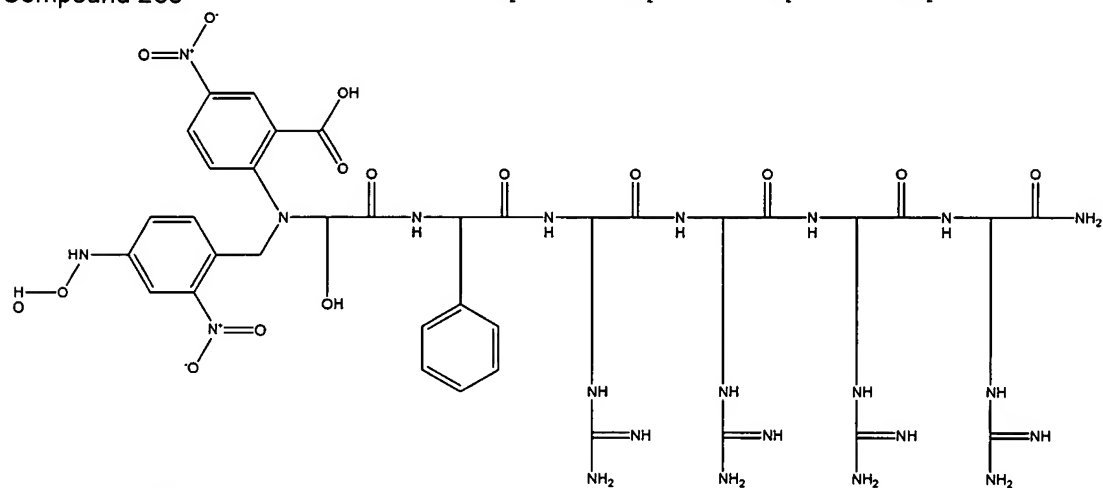


Compound 264

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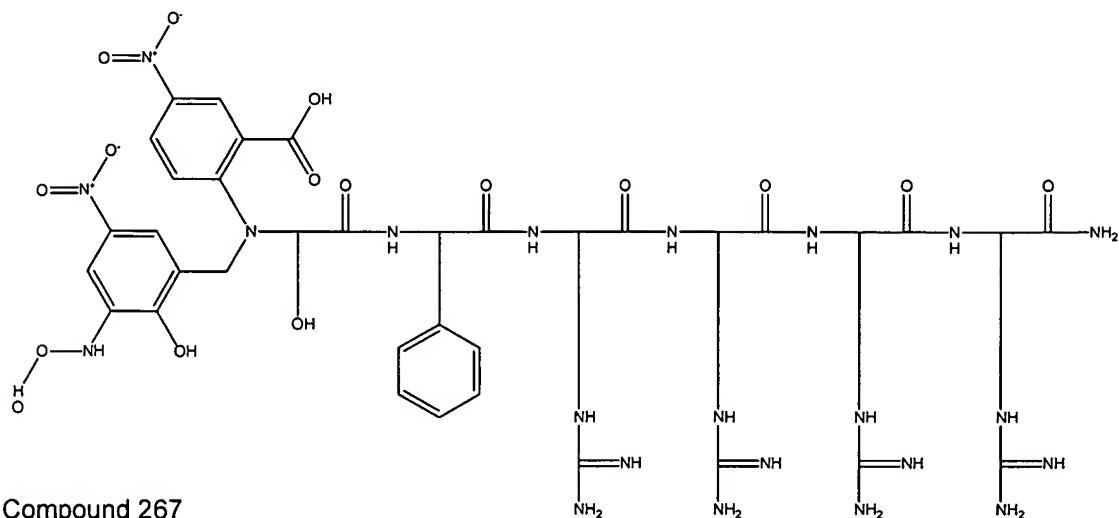


Compound 265

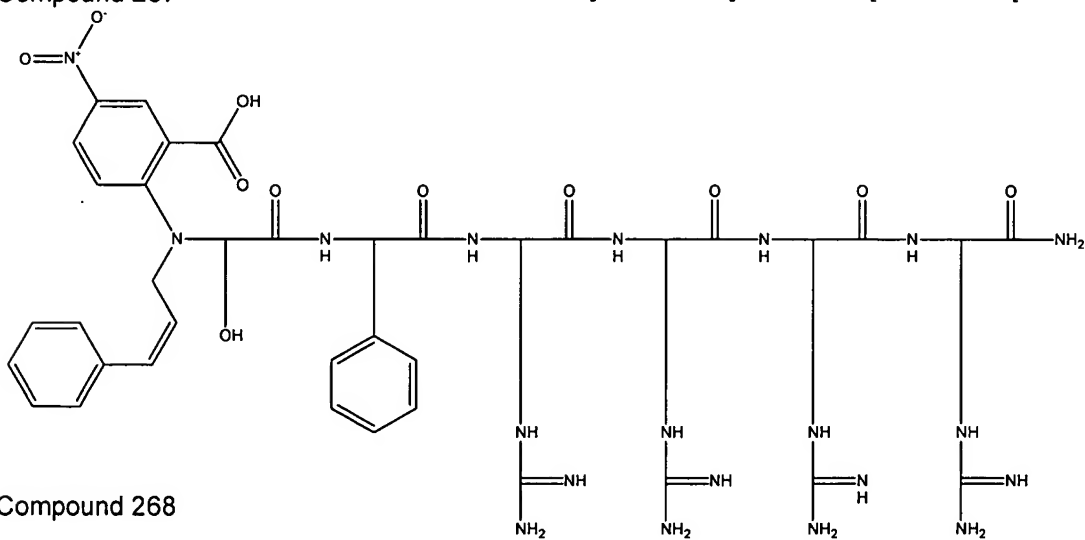


Compound 266

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Compound 267



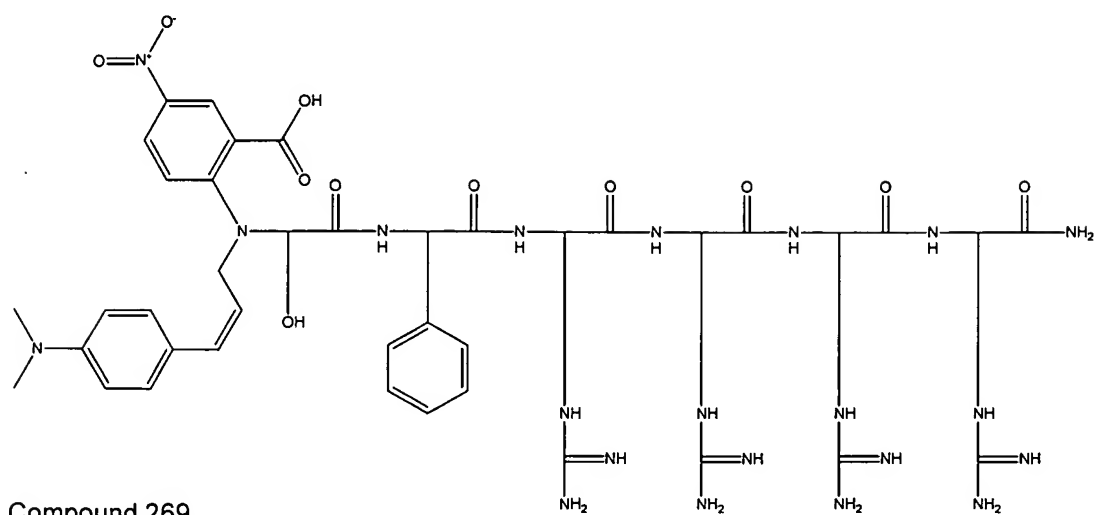
Compound 268

Applicant: David S. Lawrence

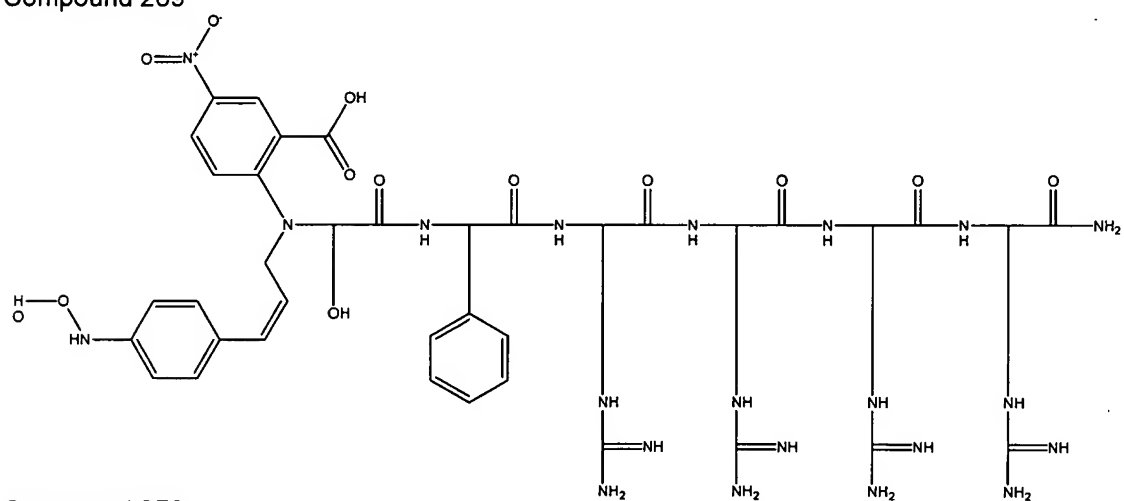
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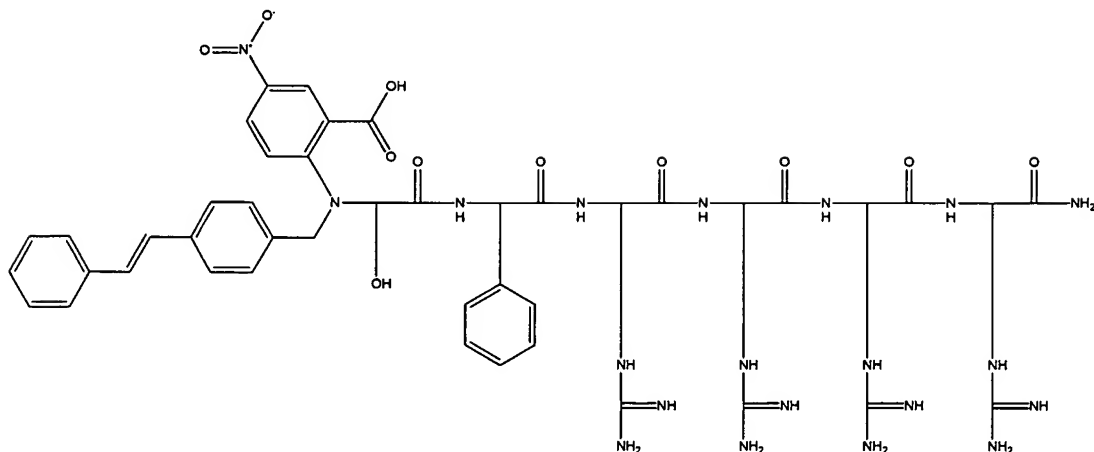


Compound 269

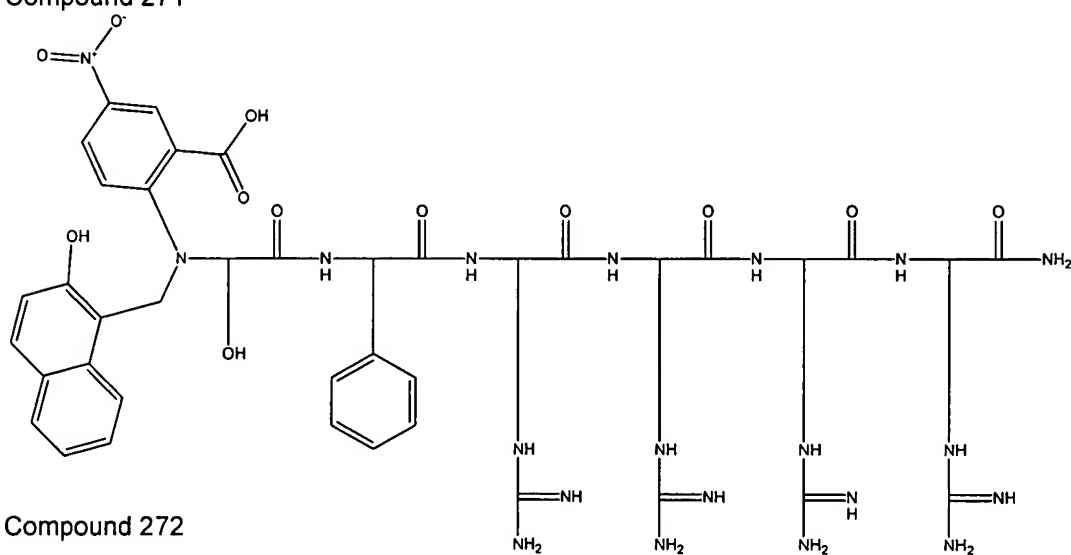


Compound 270

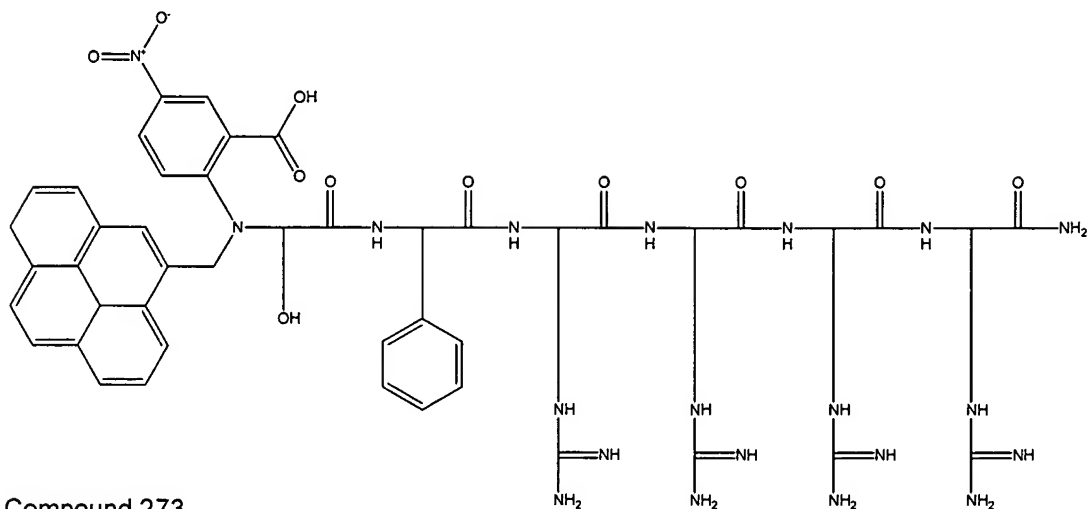
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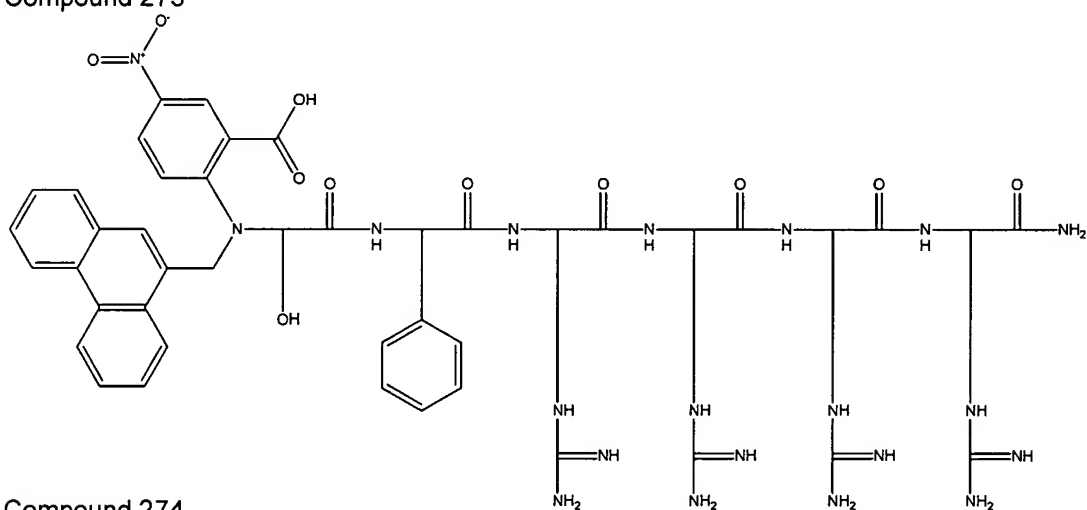
Compound 271



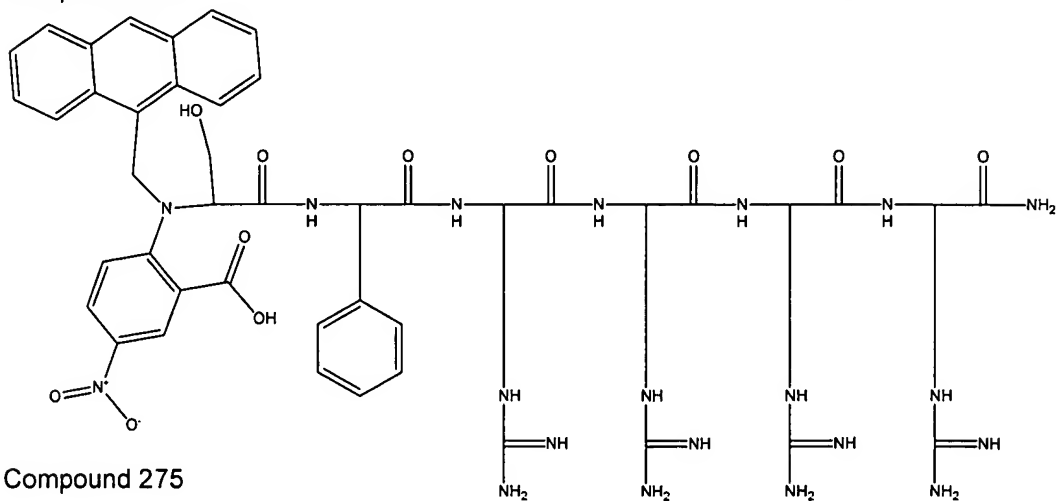
Compound 272



Compound 273

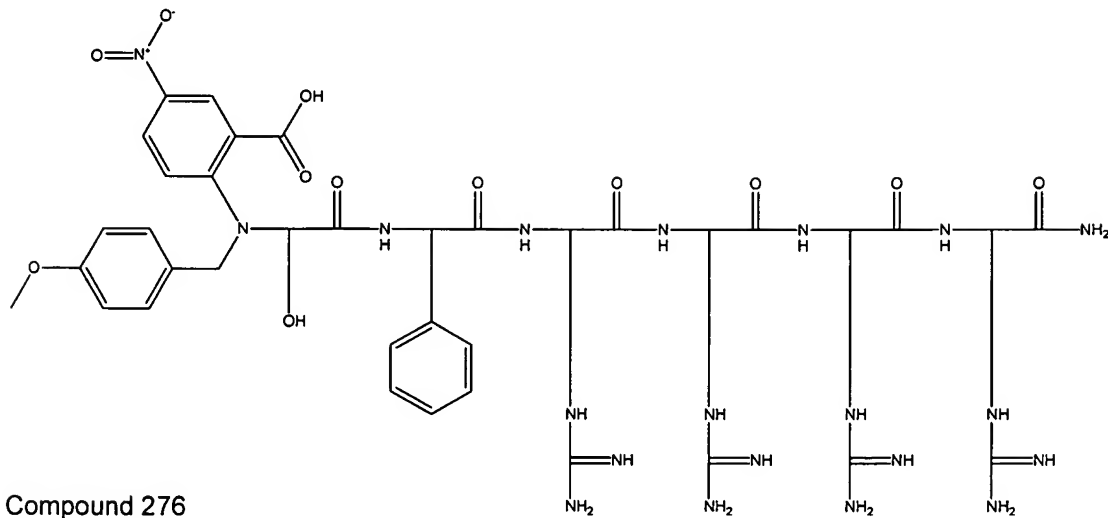


Compound 274

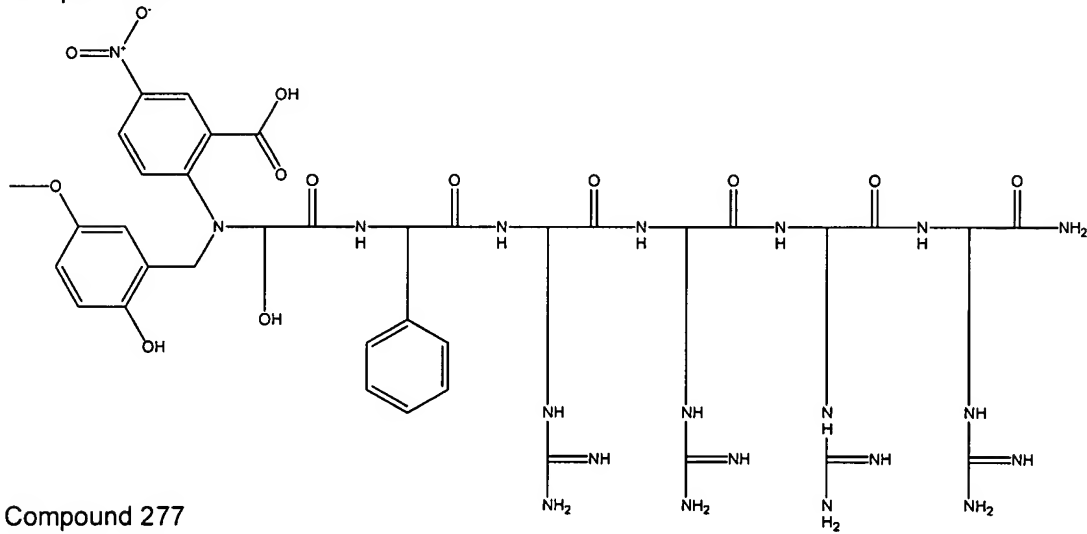


Compound 275

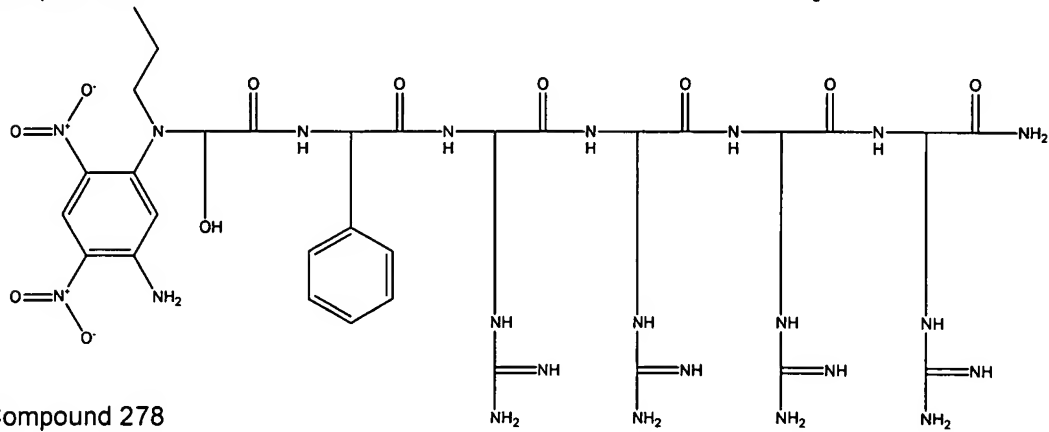
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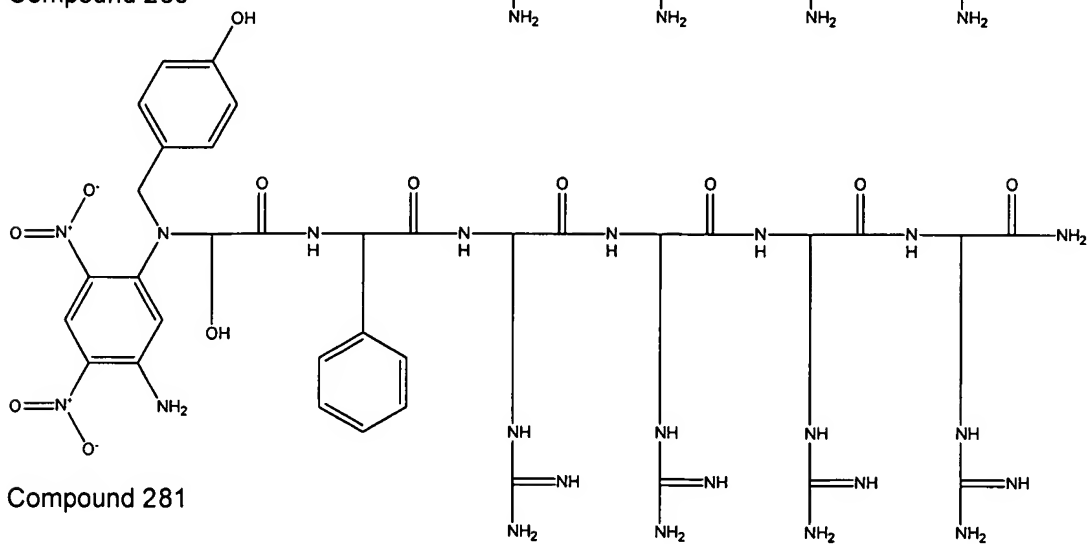
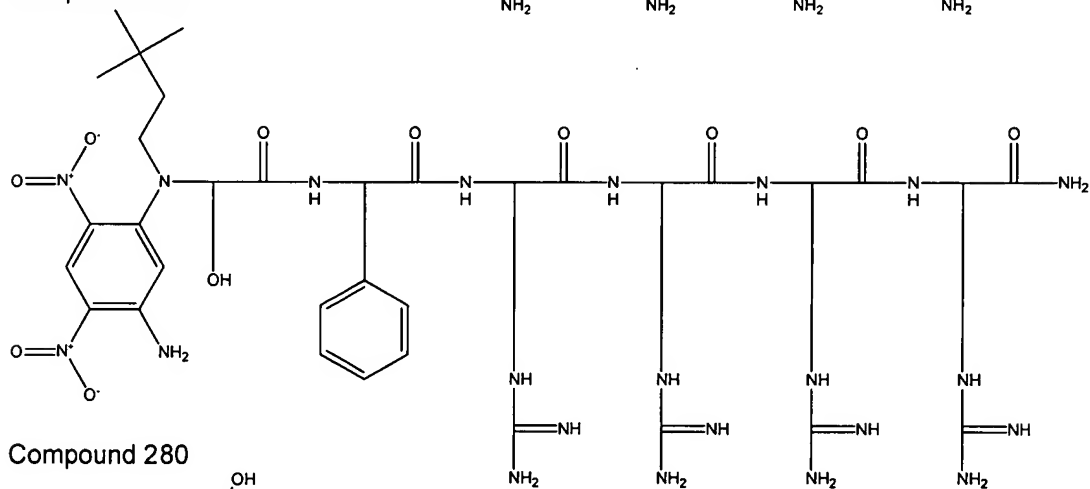
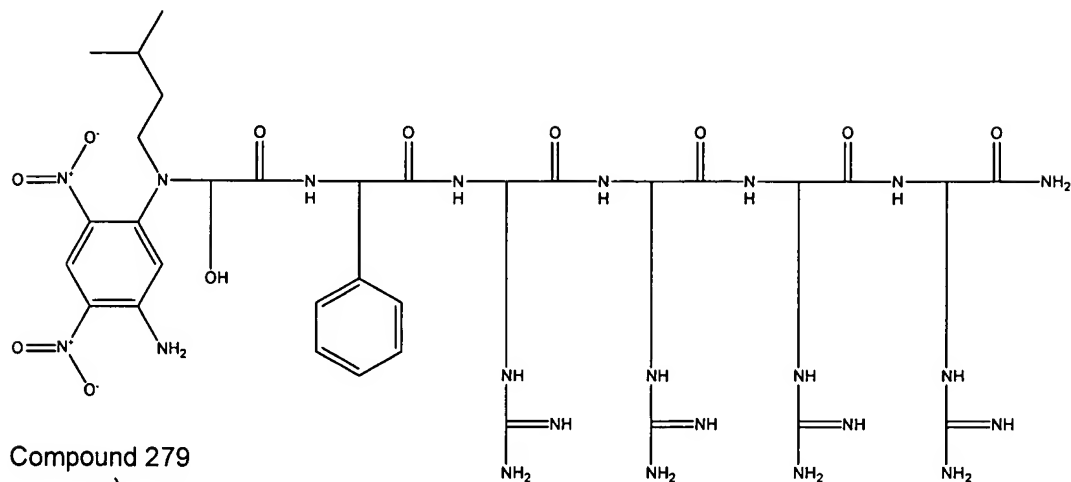
Compound 276

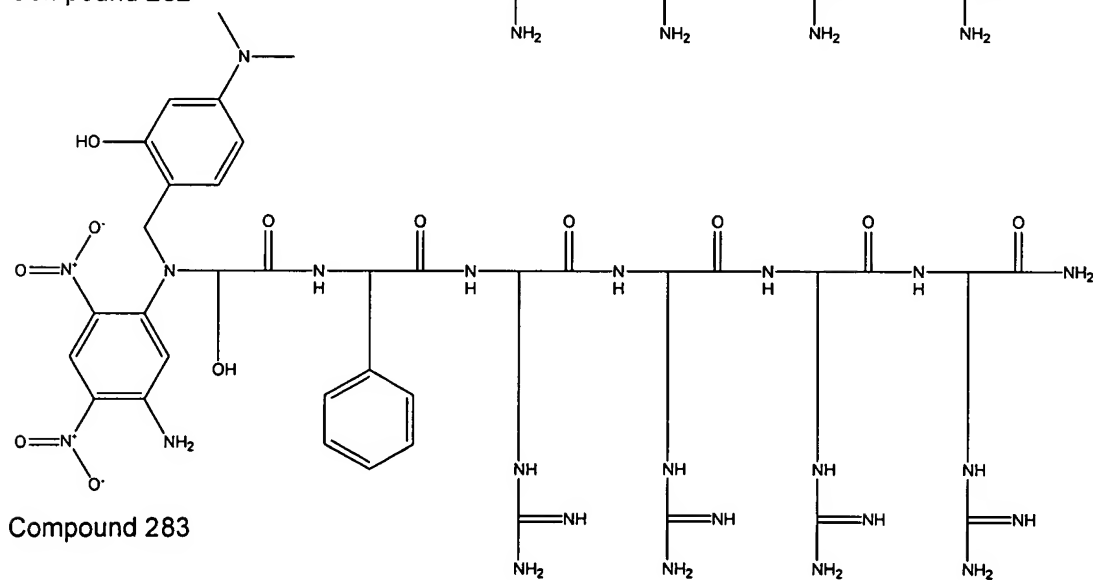
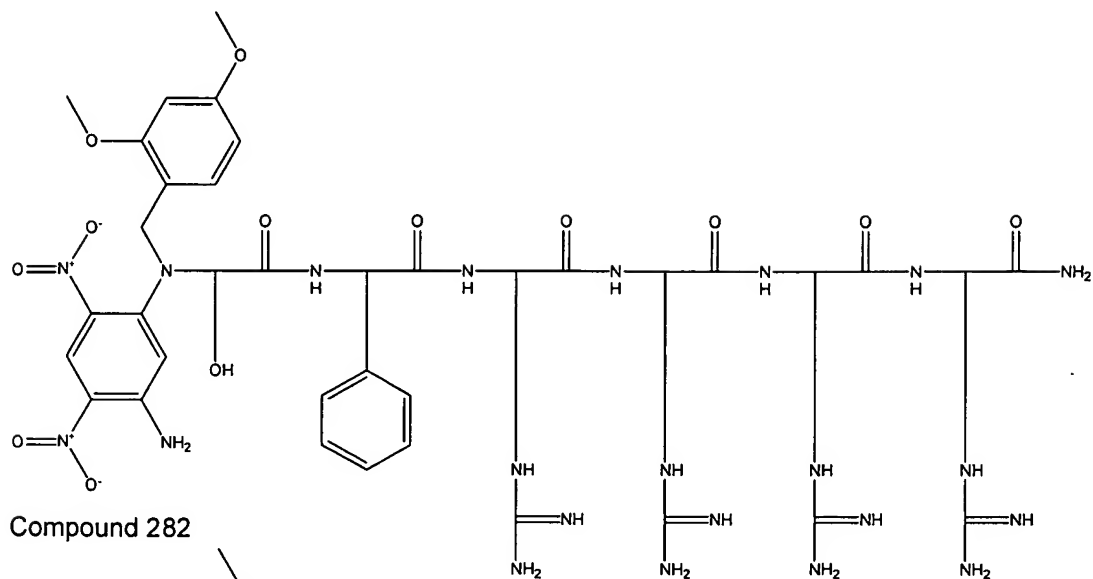


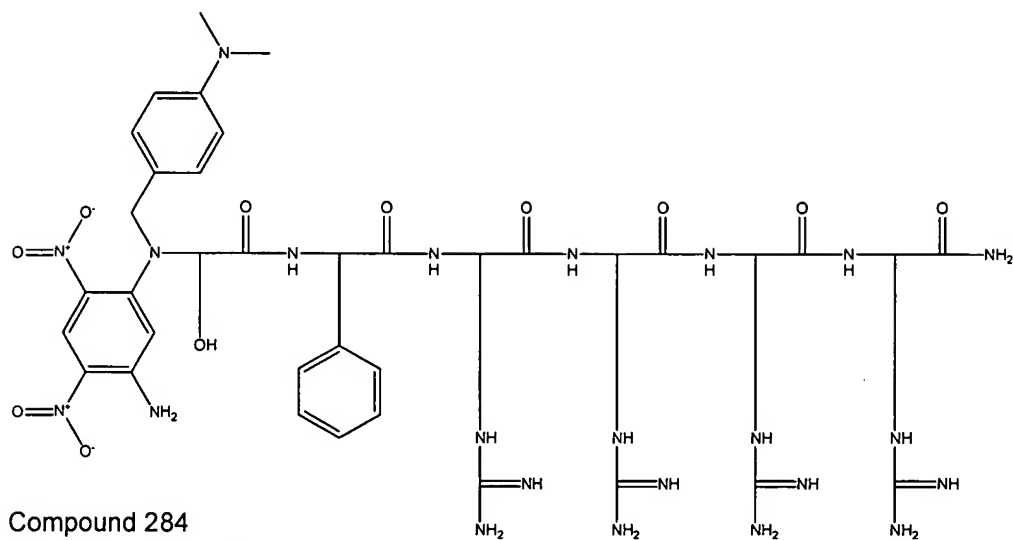
Compound 277



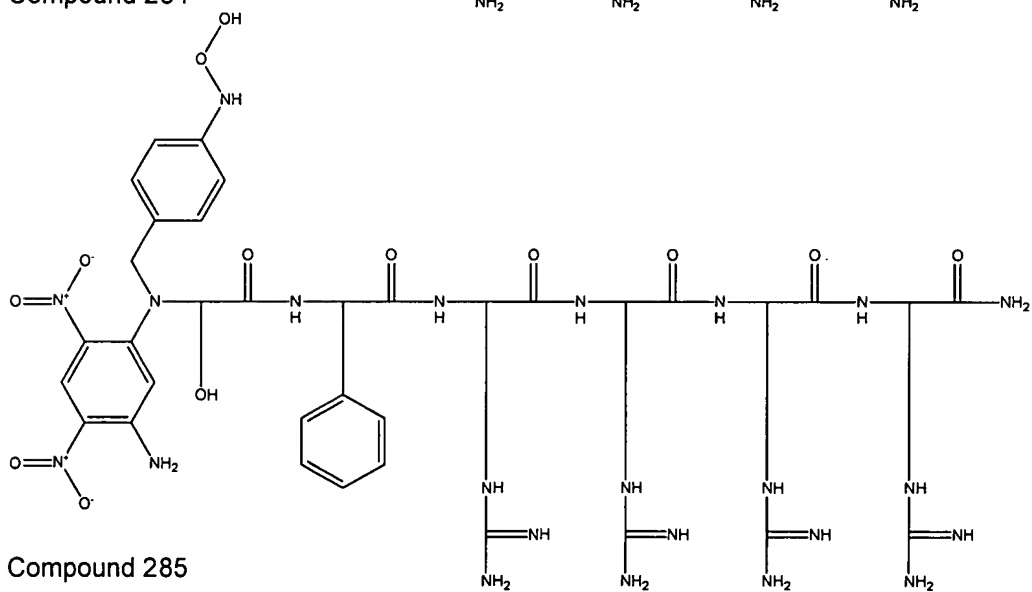
Compound 278



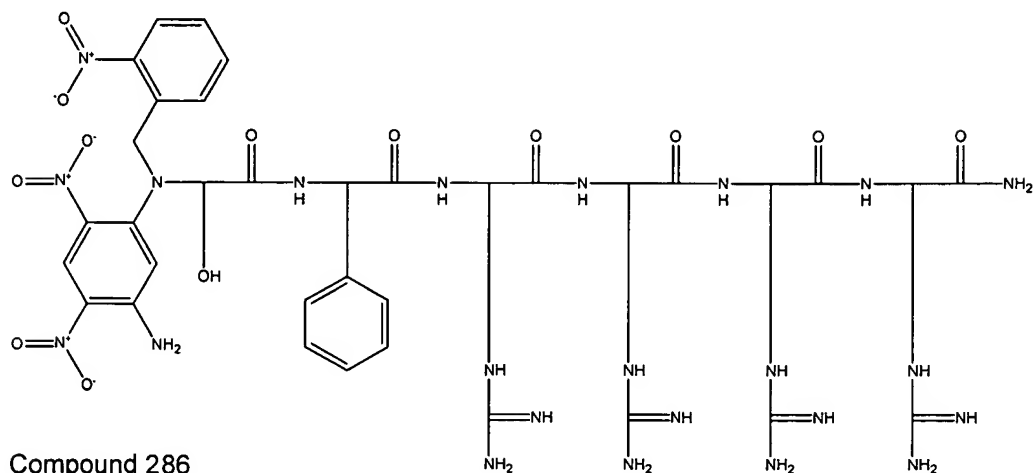




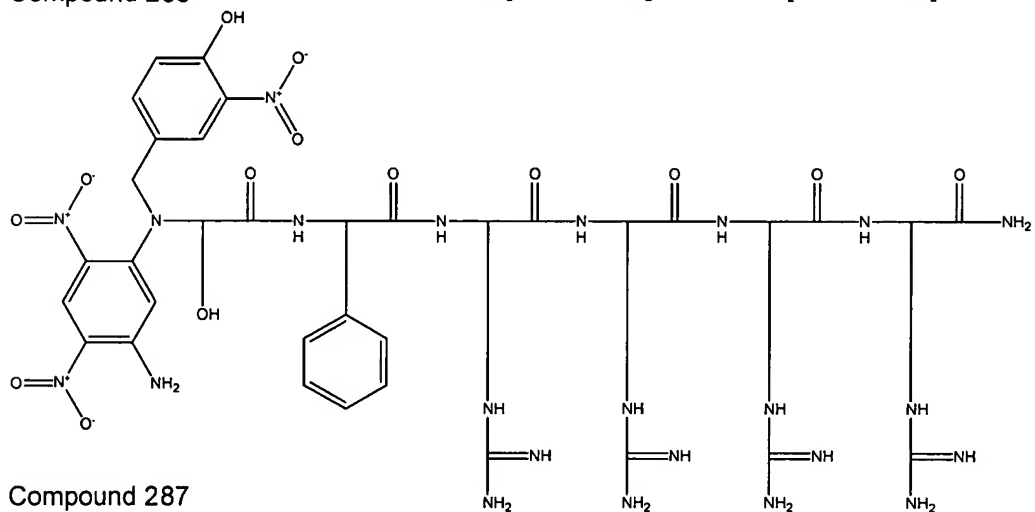
Compound 284



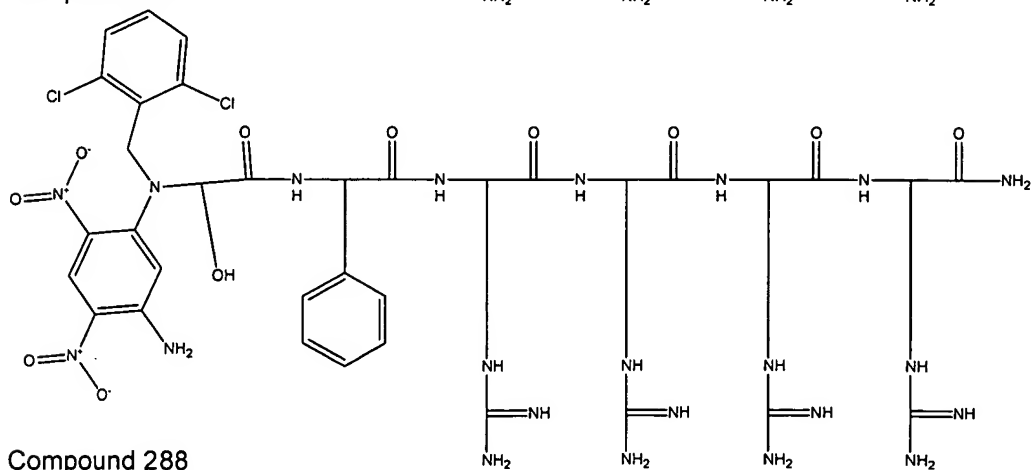
Compound 285



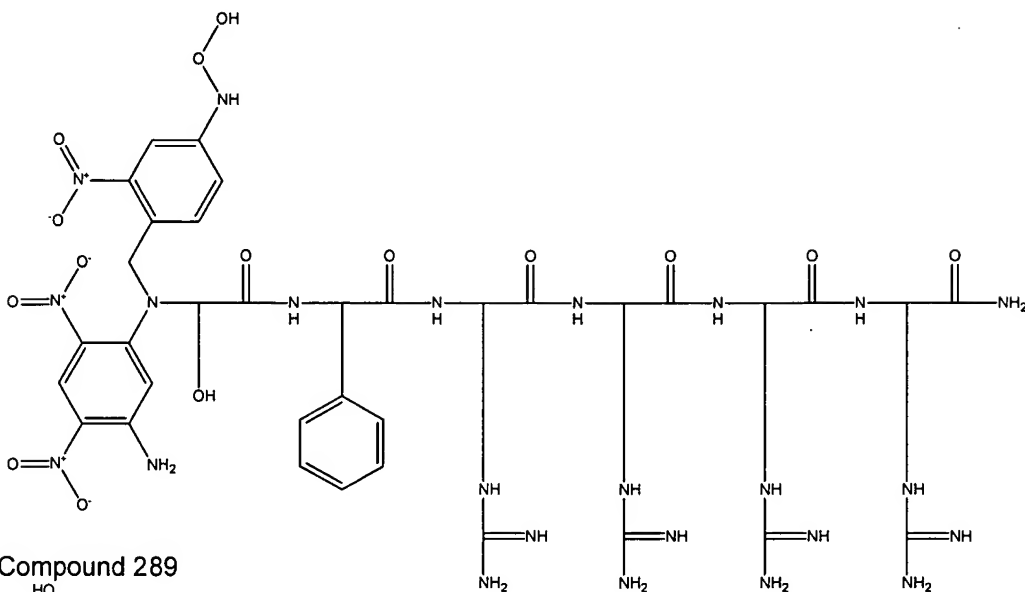
Compound 286



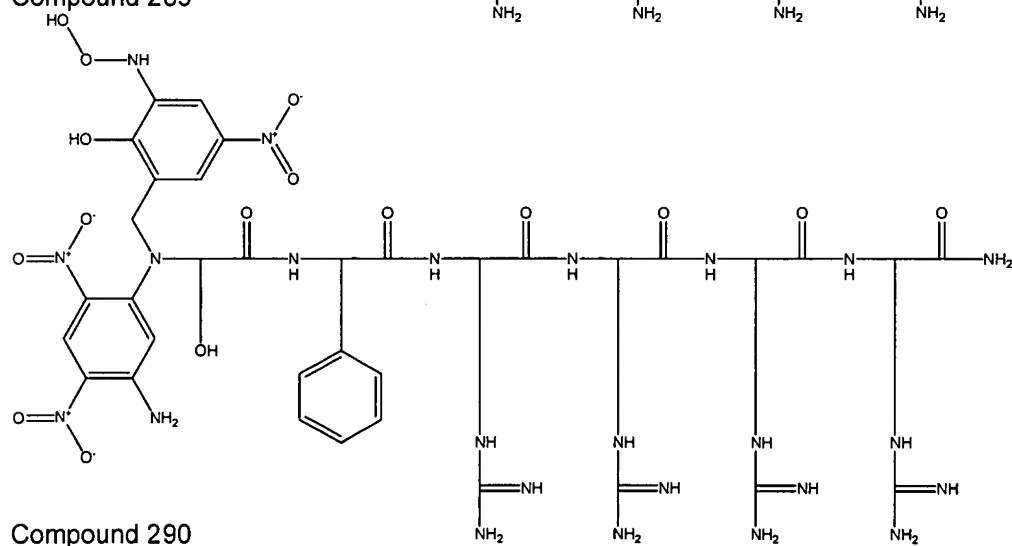
Compound 287



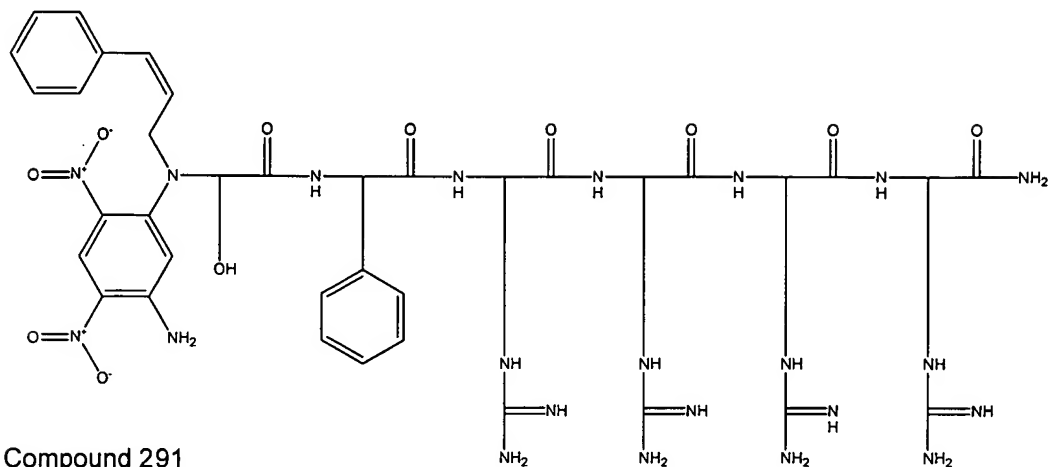
Compound 288



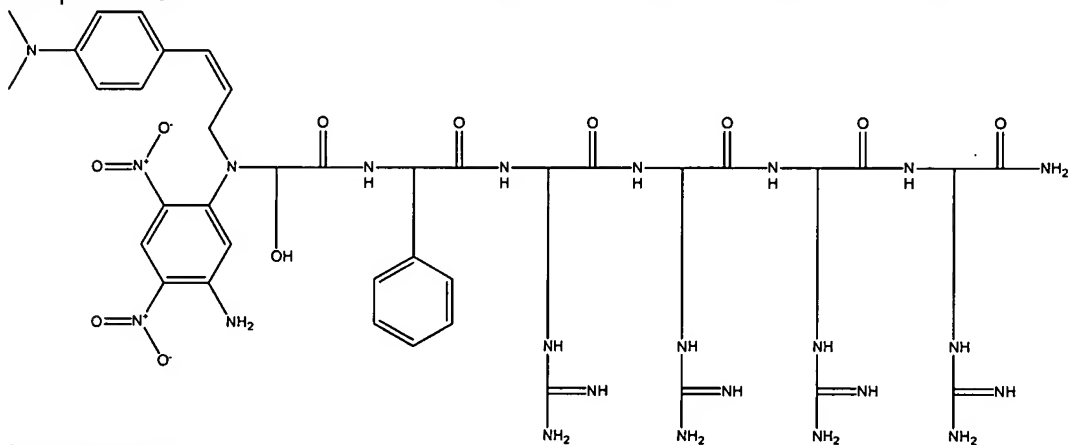
Compound 289



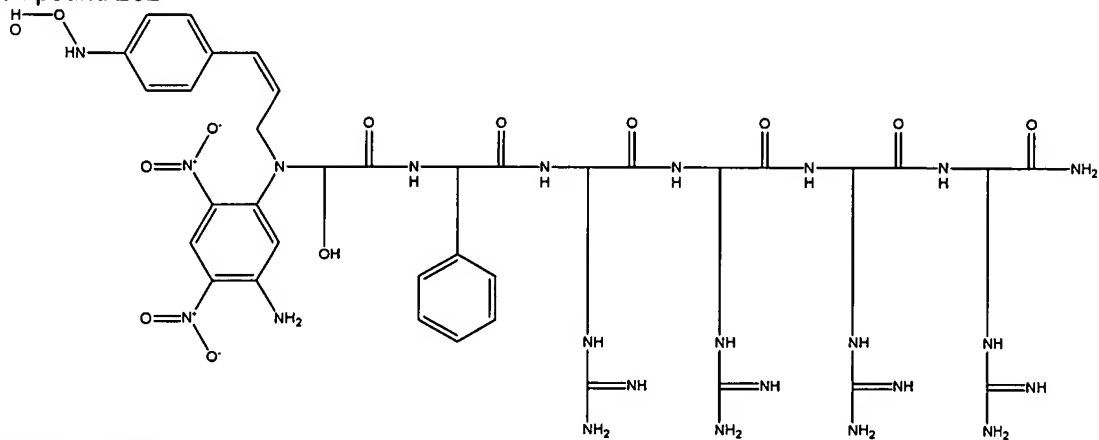
Compound 290



Compound 291



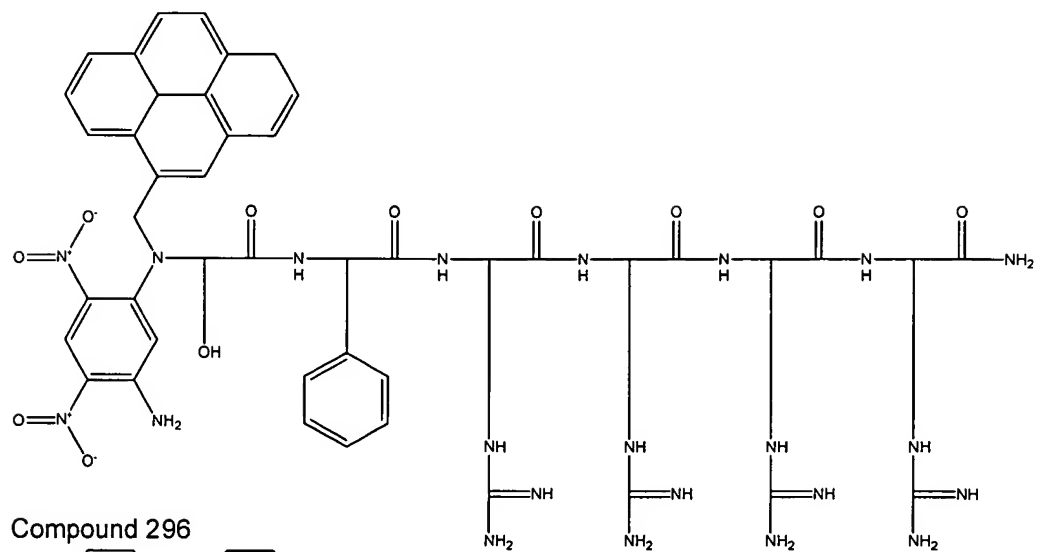
Compound 292



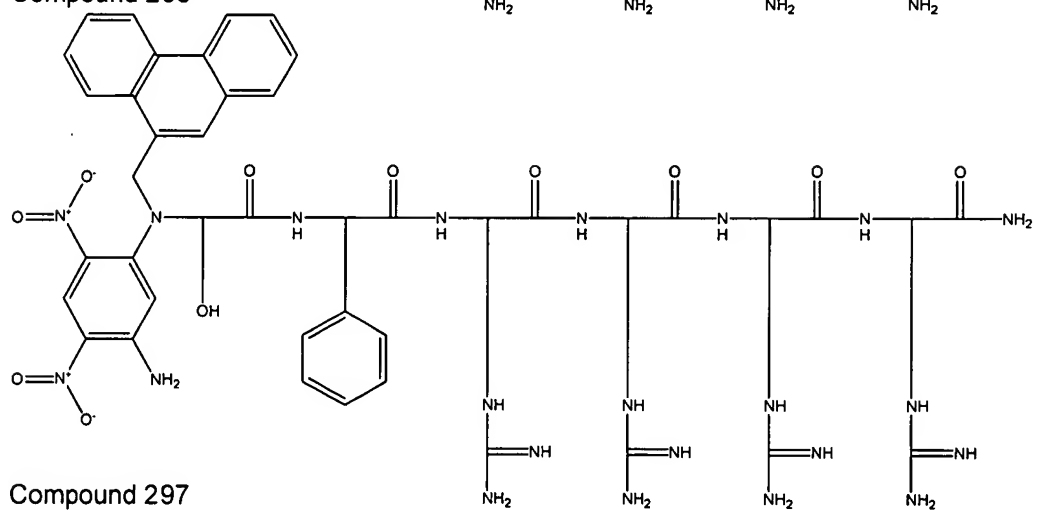
Compound 293

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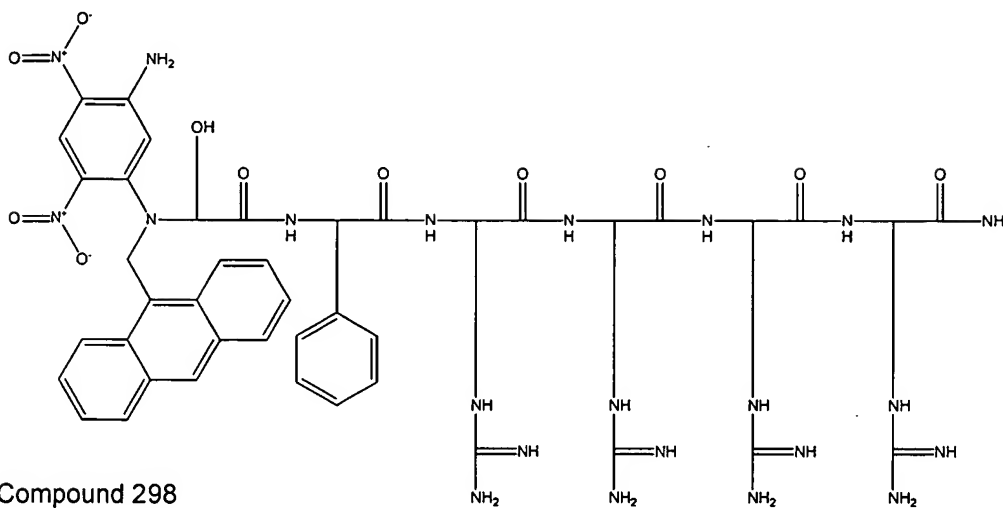




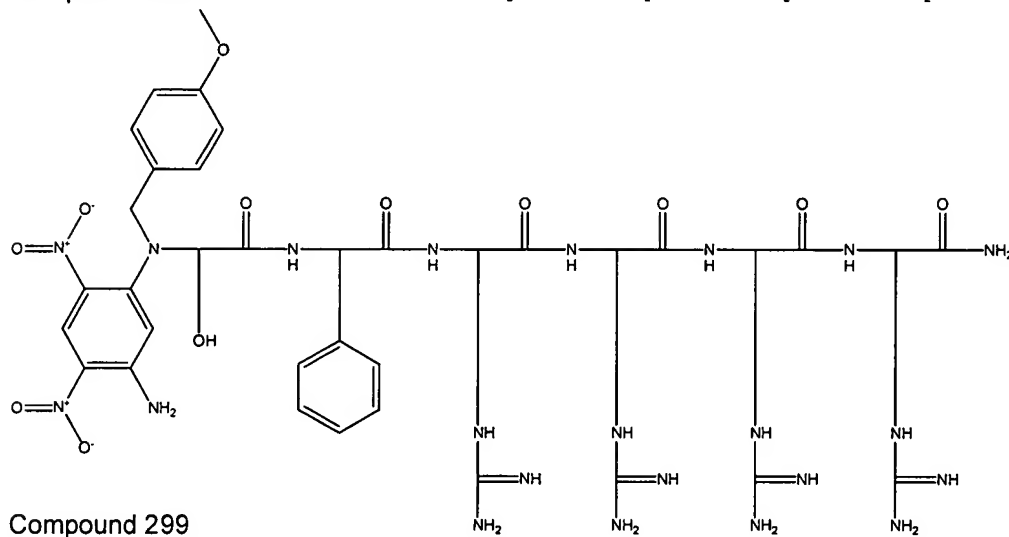
Compound 296



Compound 297



Compound 298



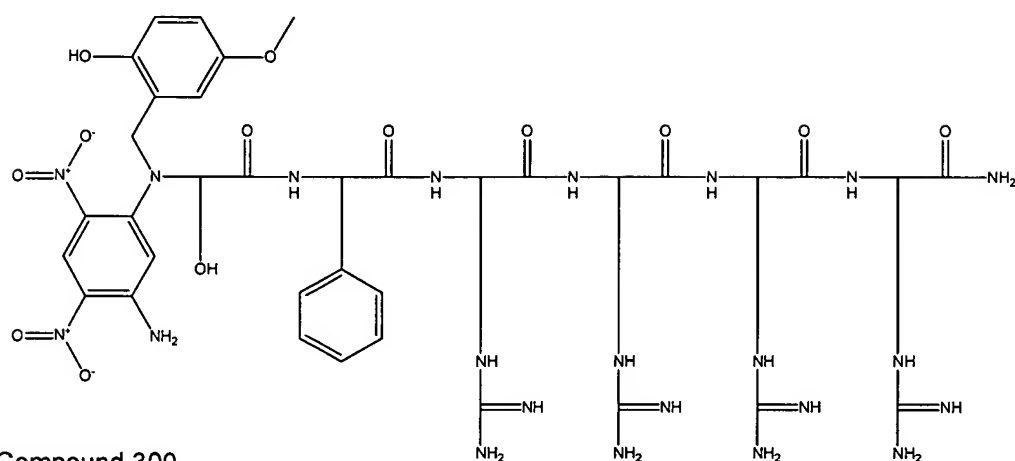
Compound 299

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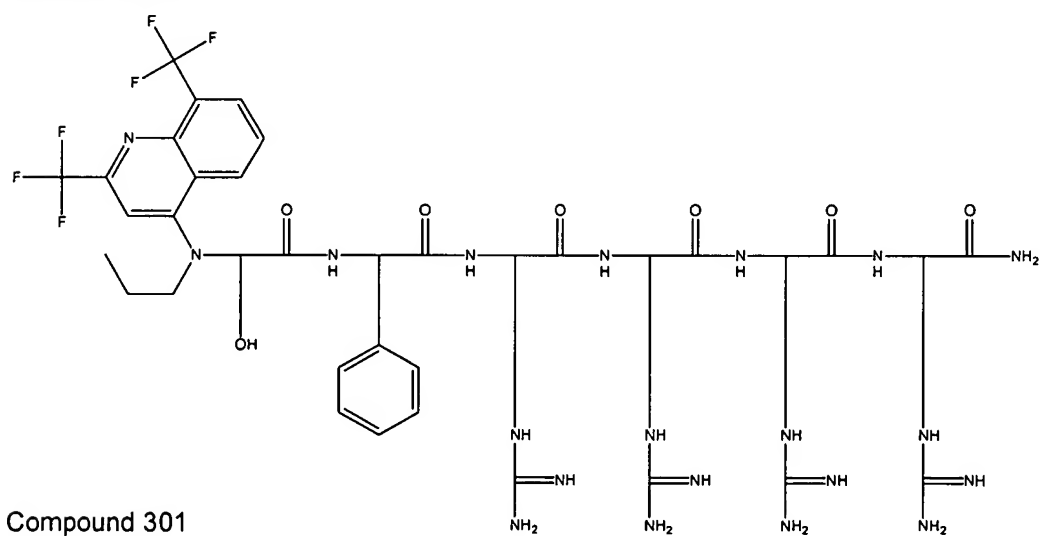
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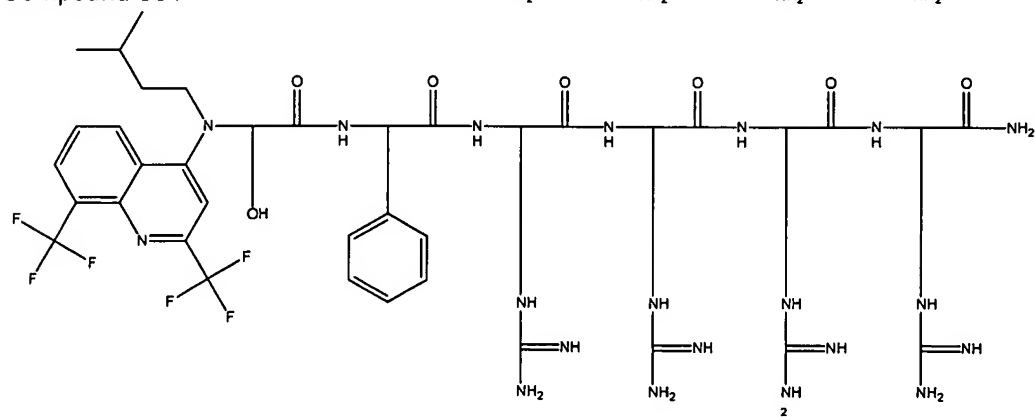
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Compound 300



Compound 301



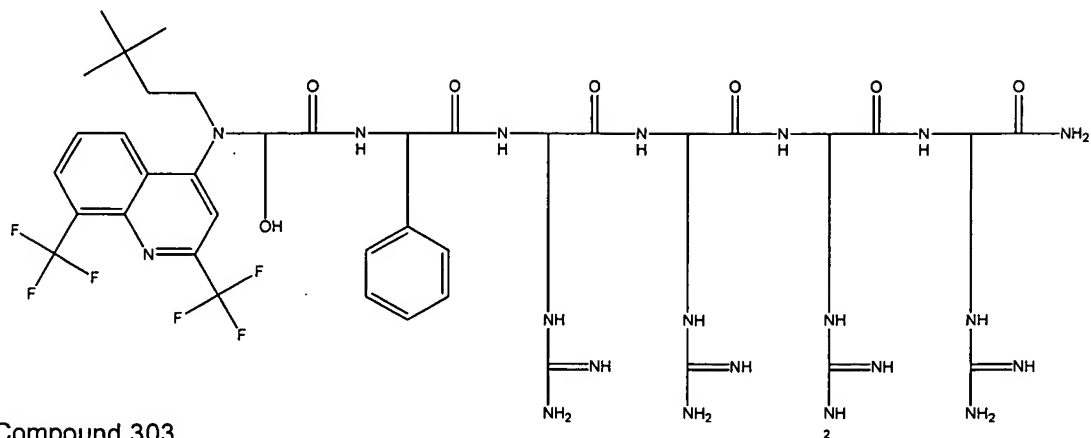
Compound 302

Applicant: David S. Lawrence

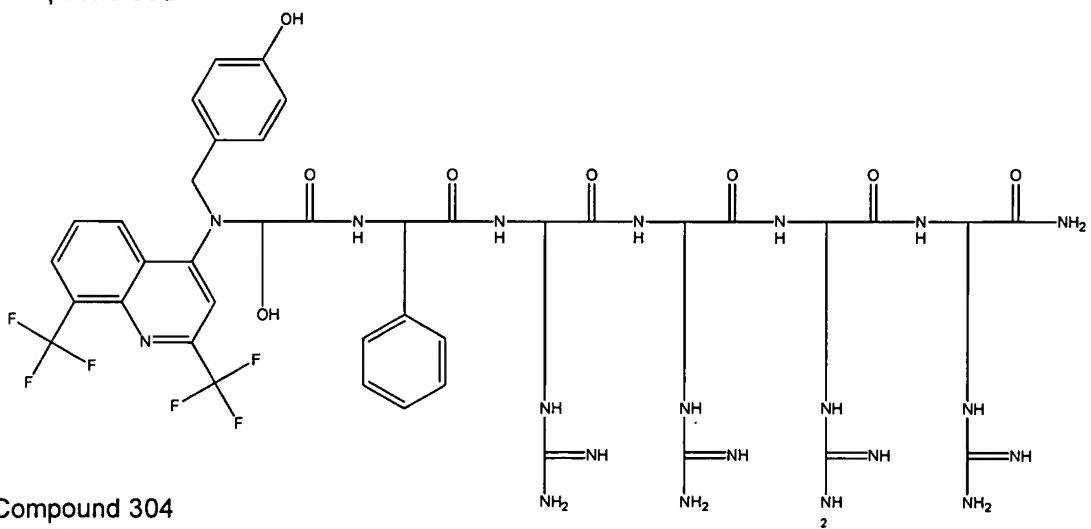
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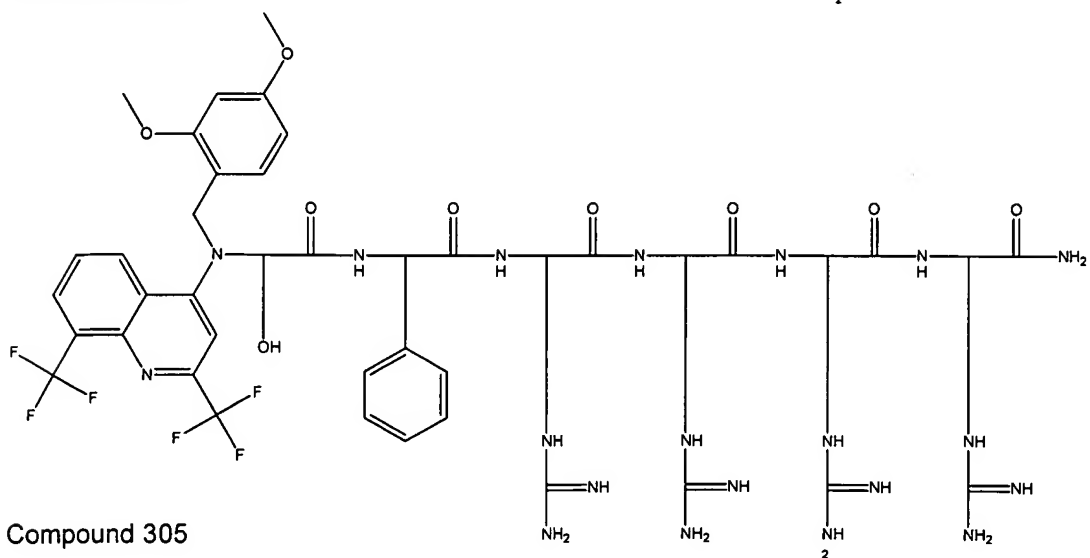
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Compound 303



Compound 304



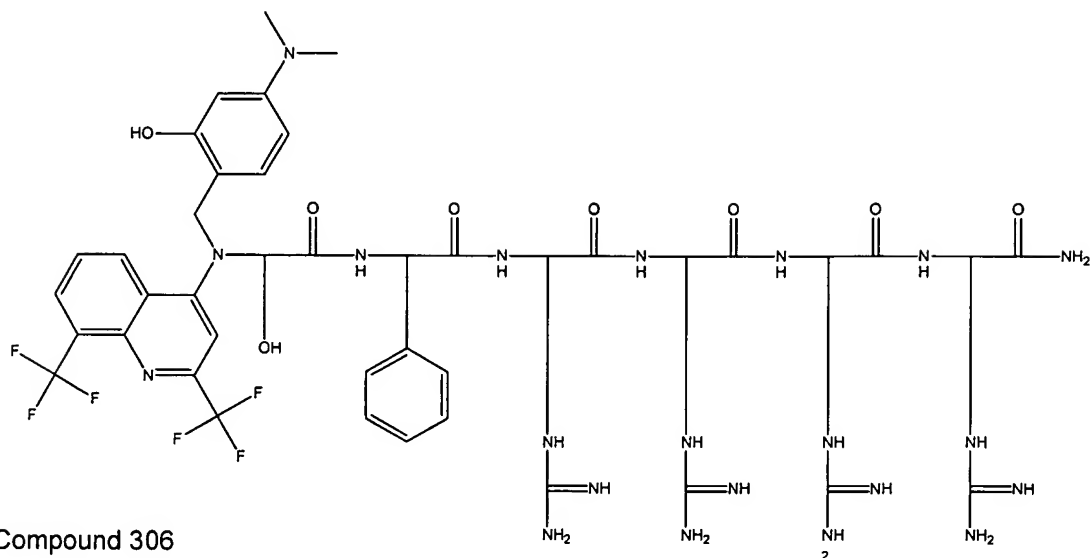
Compound 305

Applicant: David S. Lawrence

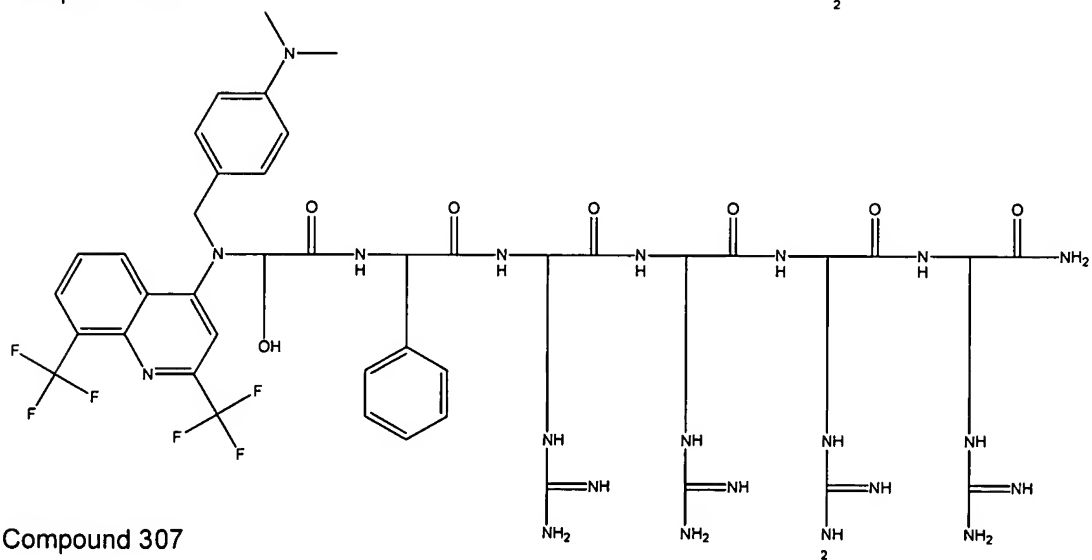
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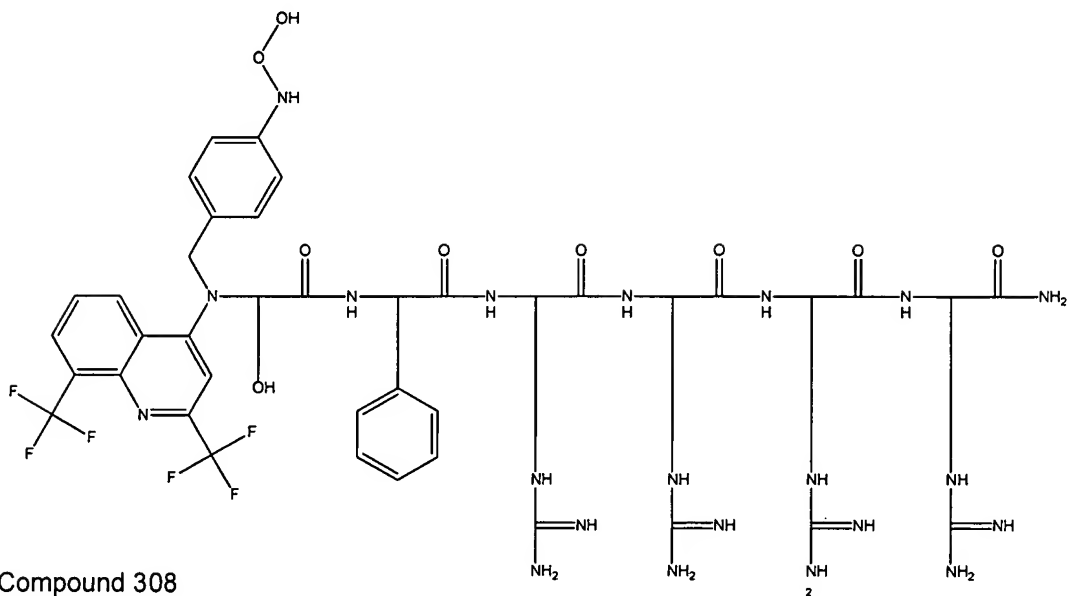
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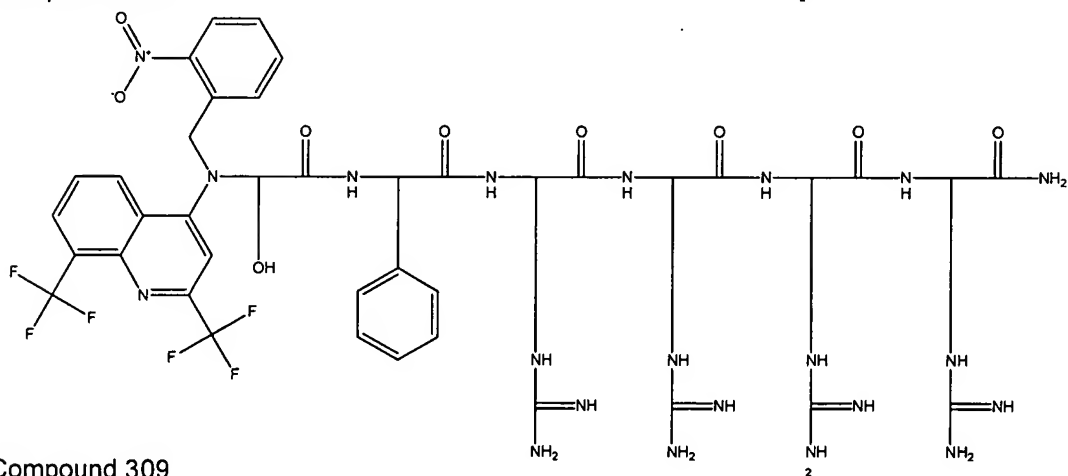
Compound 306



Compound 307

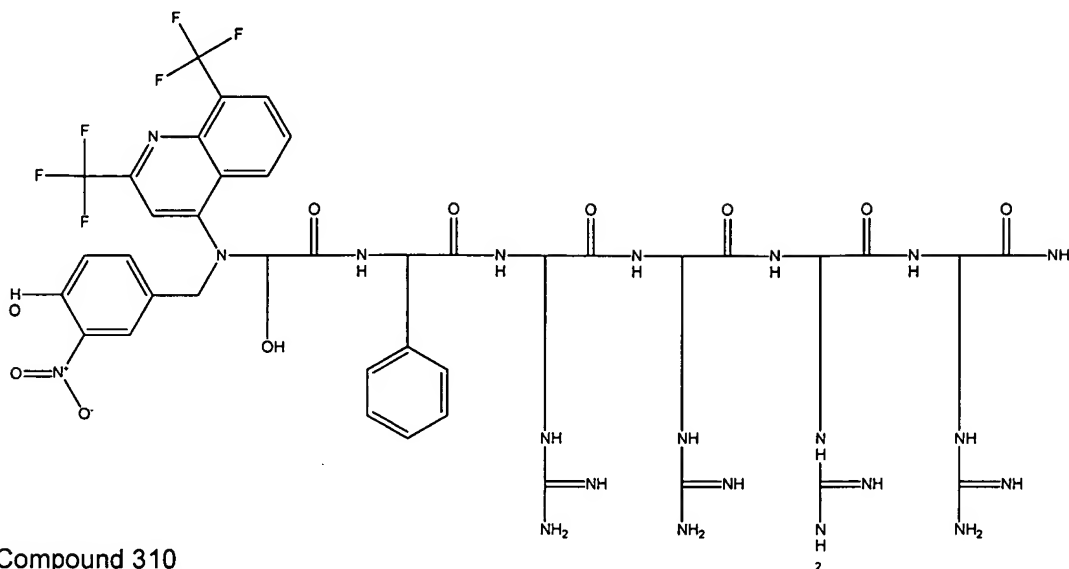


Compound 308

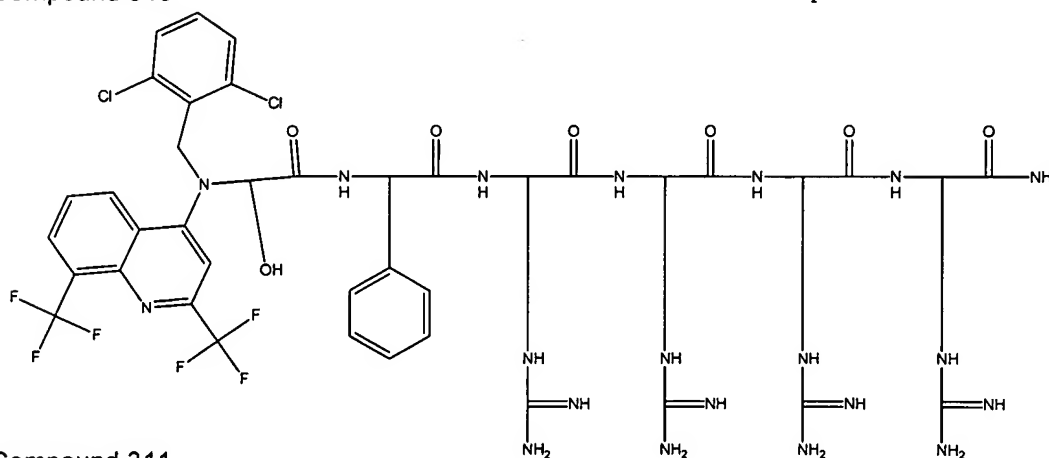


Compound 309

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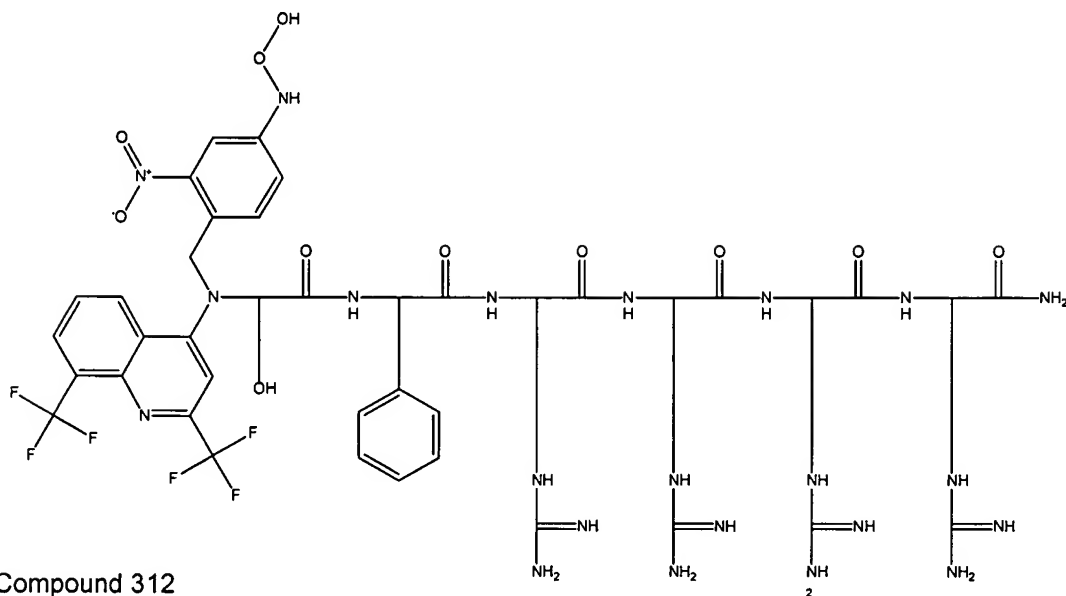


Compound 310

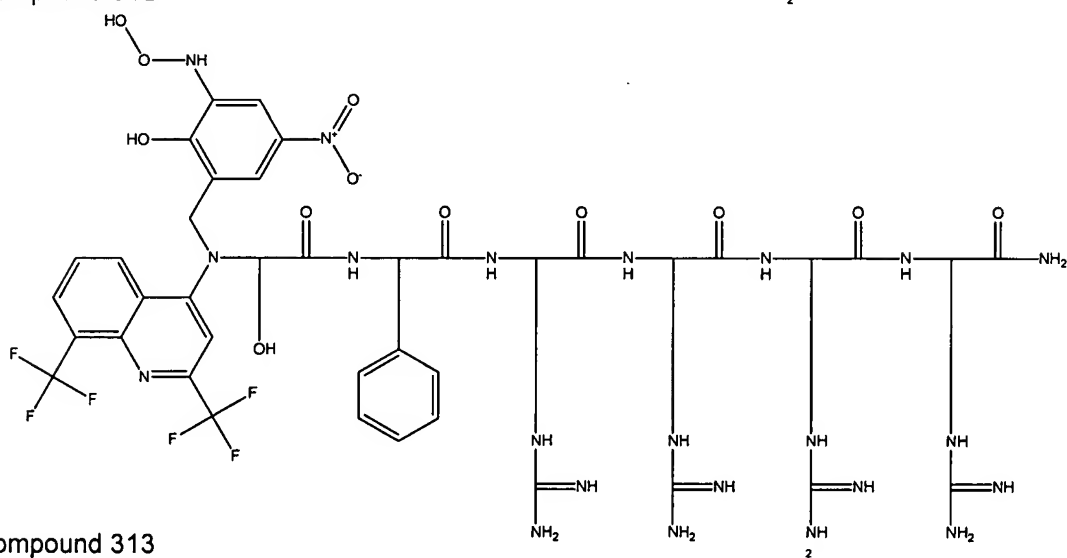


Compound 311

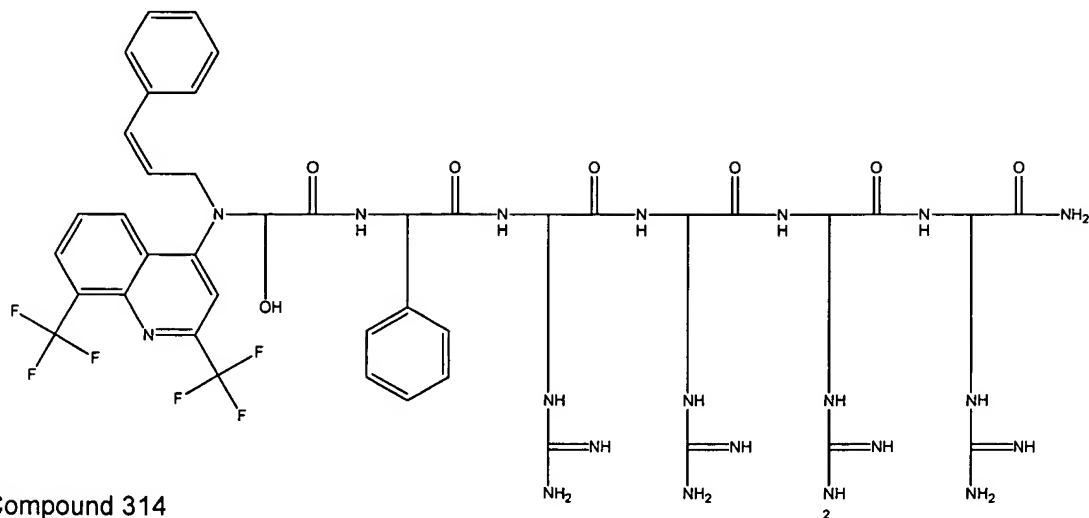
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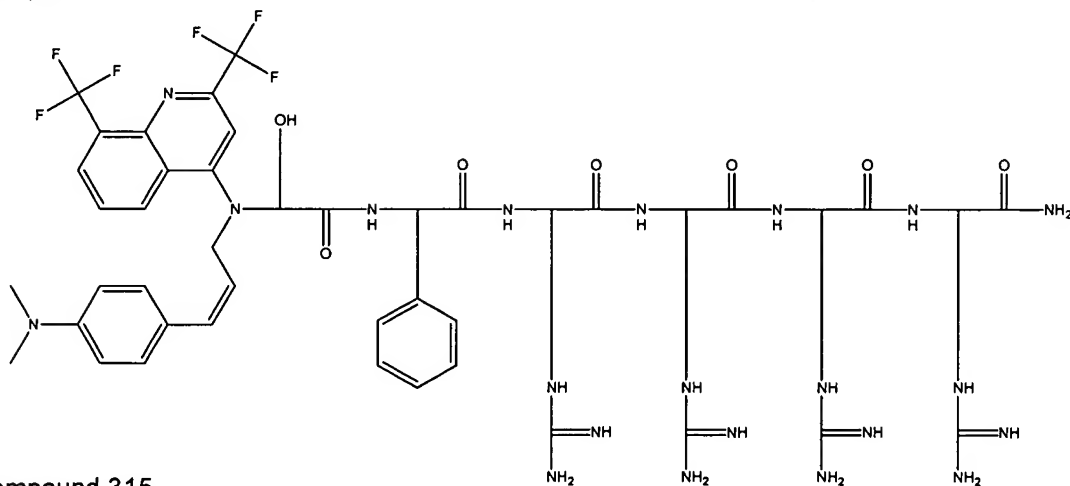
Compound 312



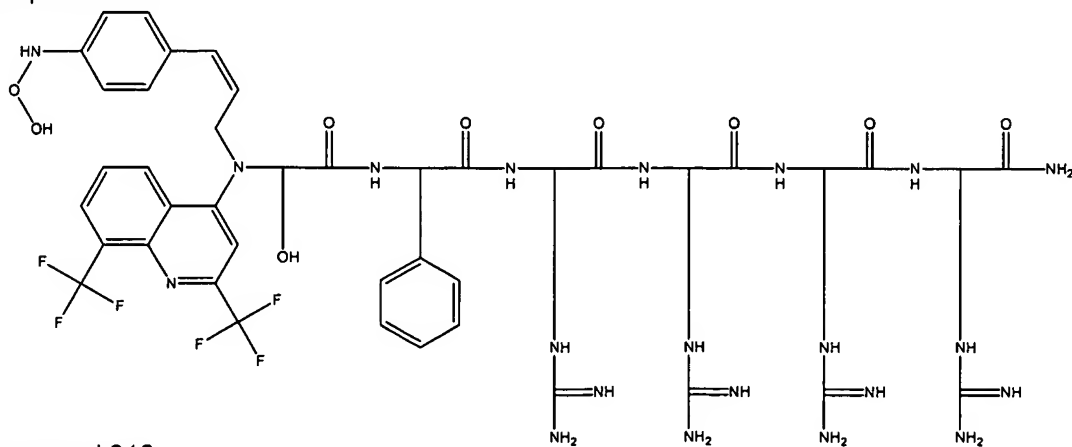
Compound 313



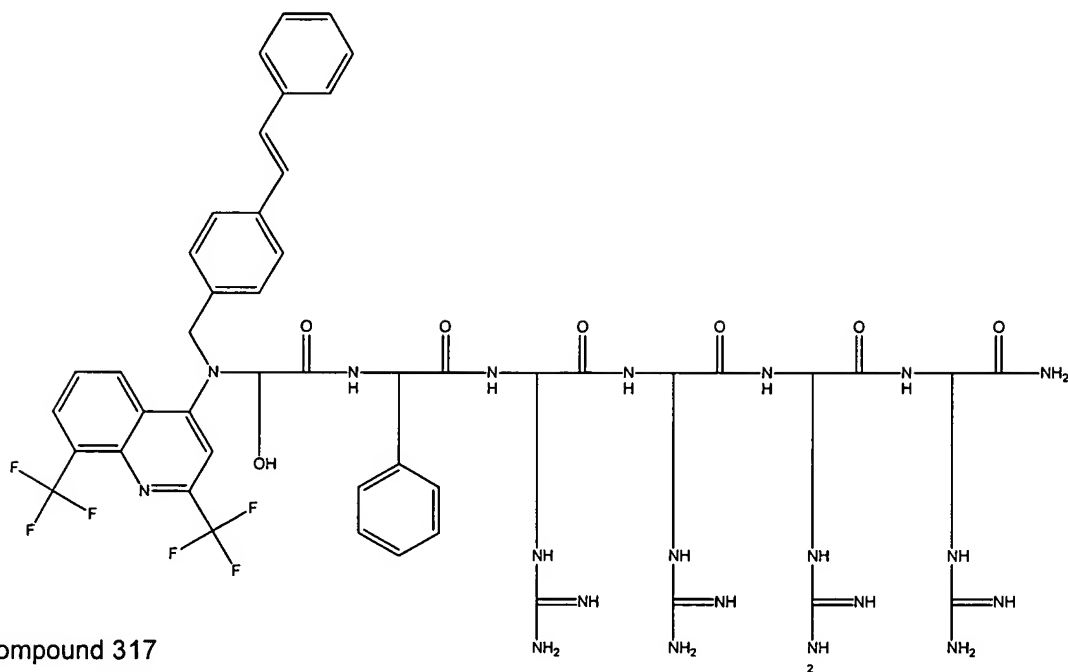
Compound 314



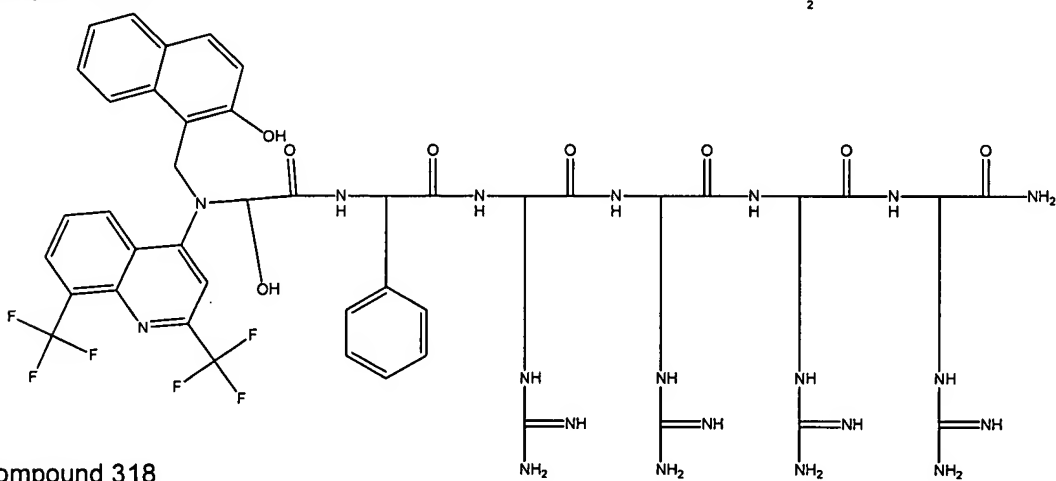
Compound 315



Compound 316

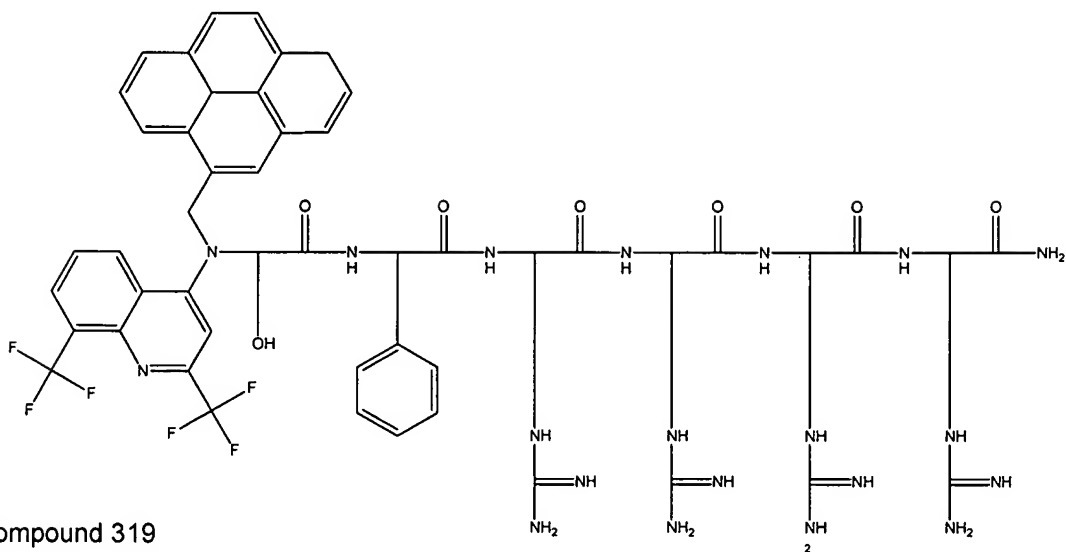


Compound 317

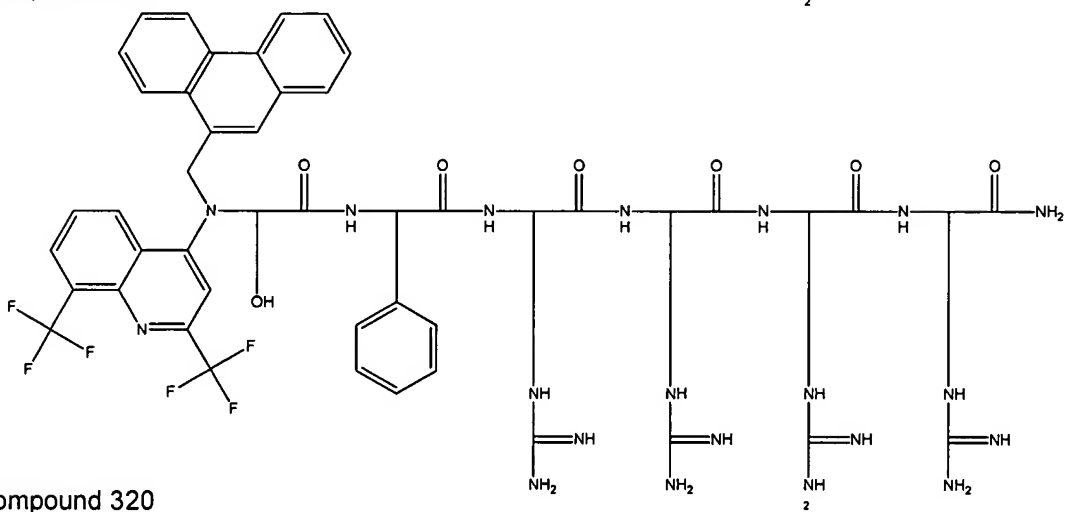


Compound 318

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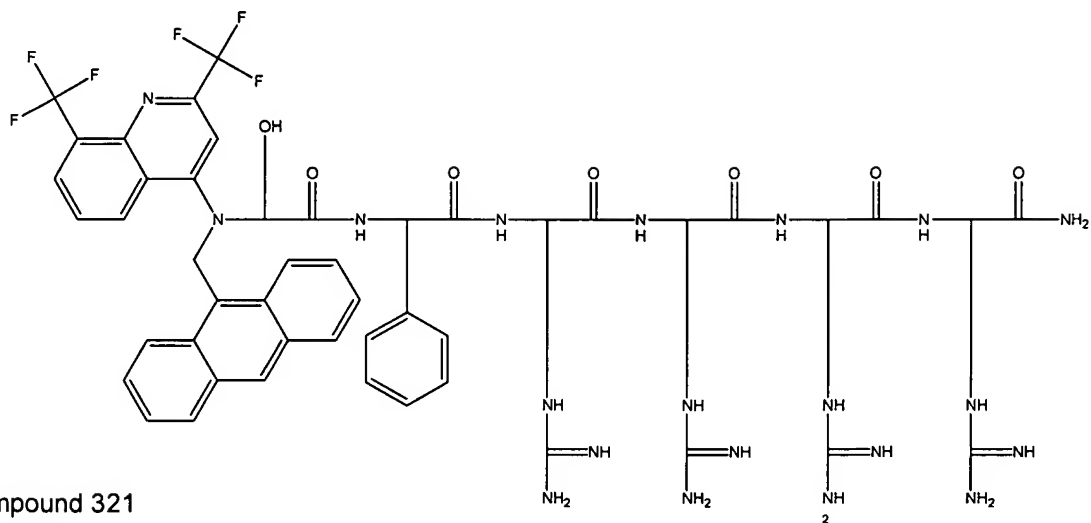


Compound 319

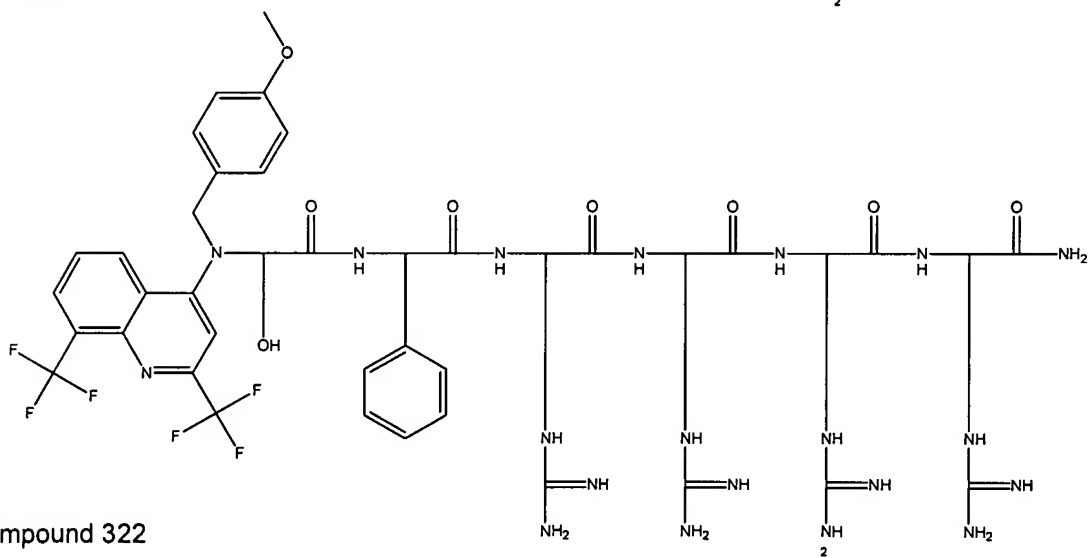


Compound 320

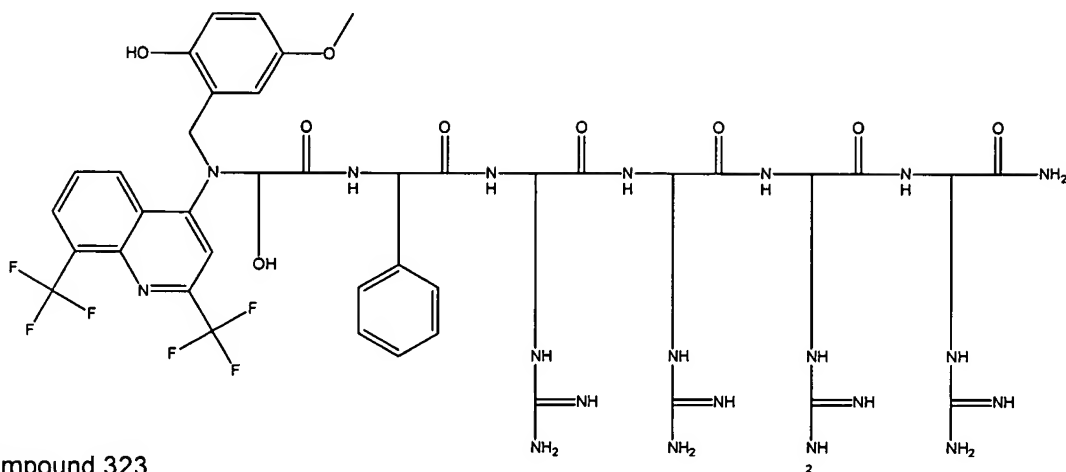
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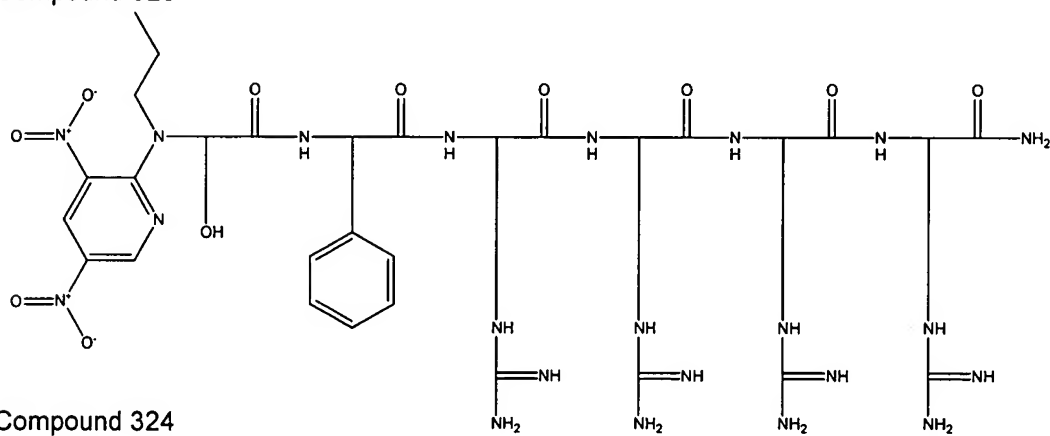
Compound 321



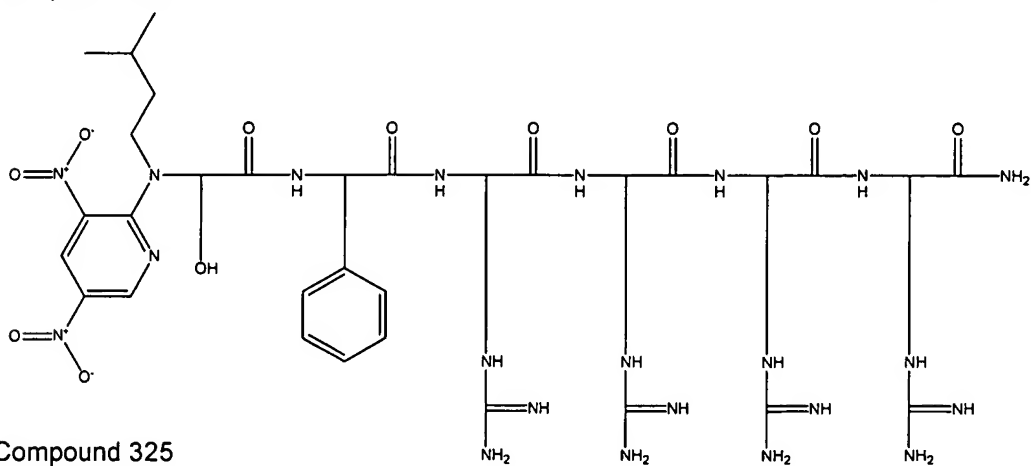
Compound 322



Compound 323

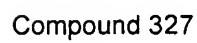


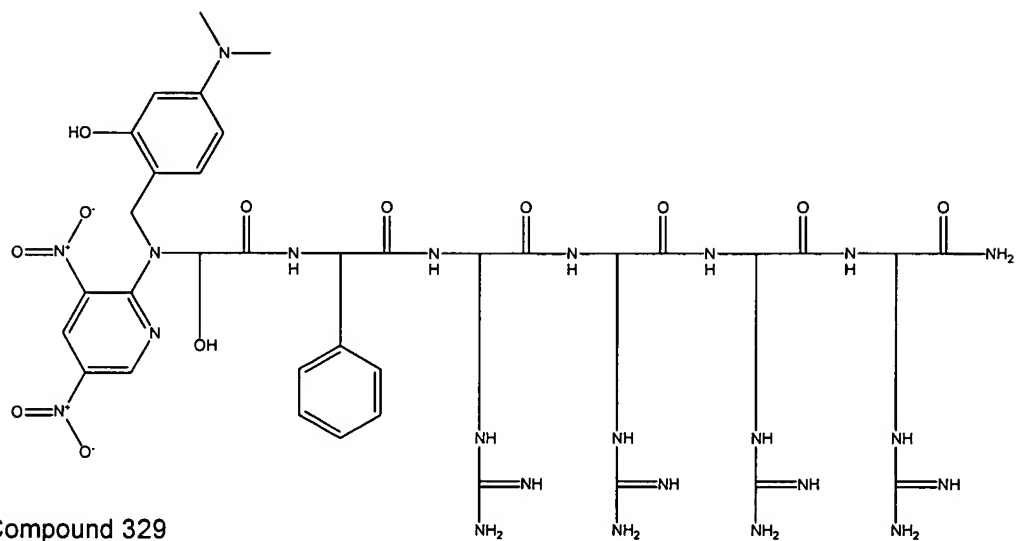
Compound 324



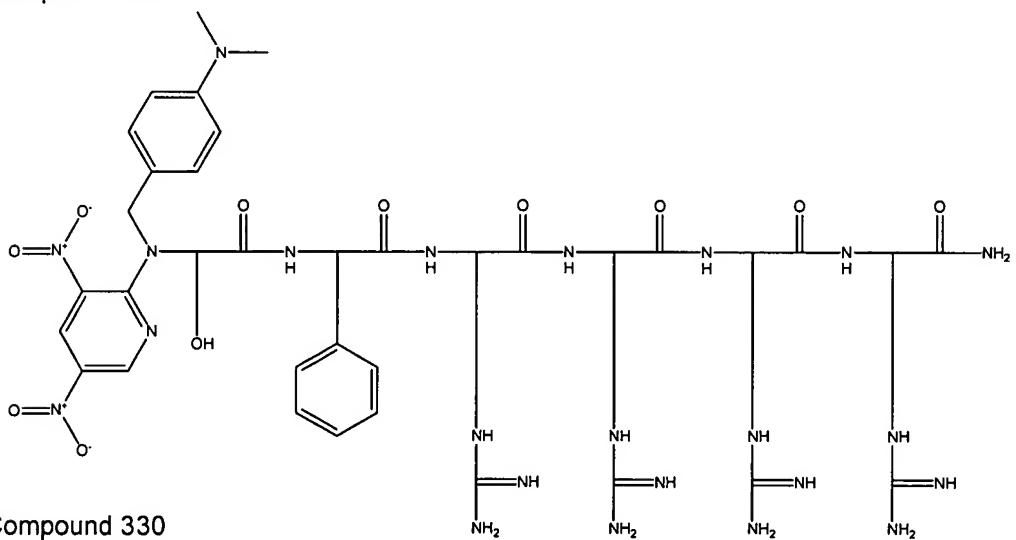
Compound 325

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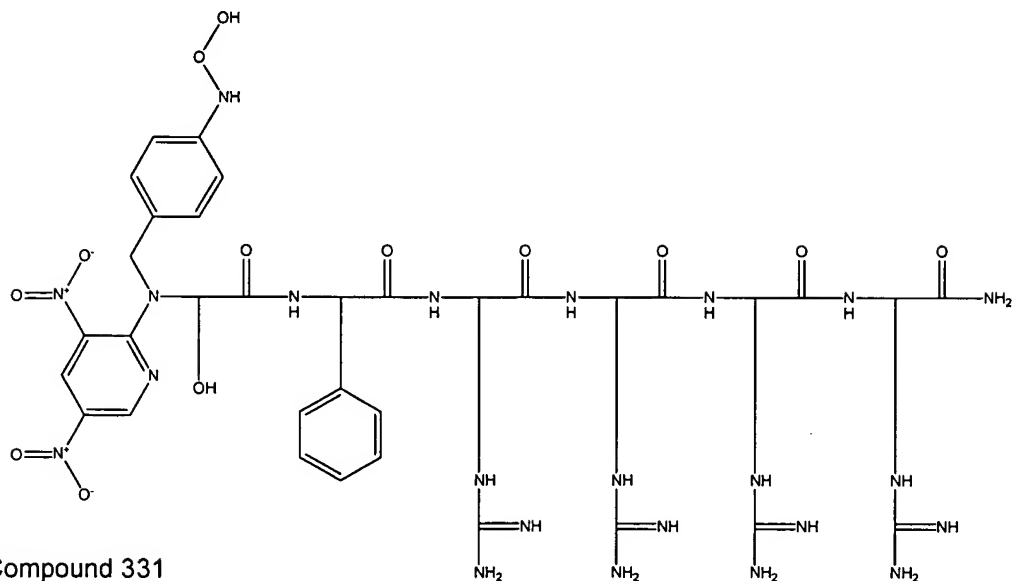




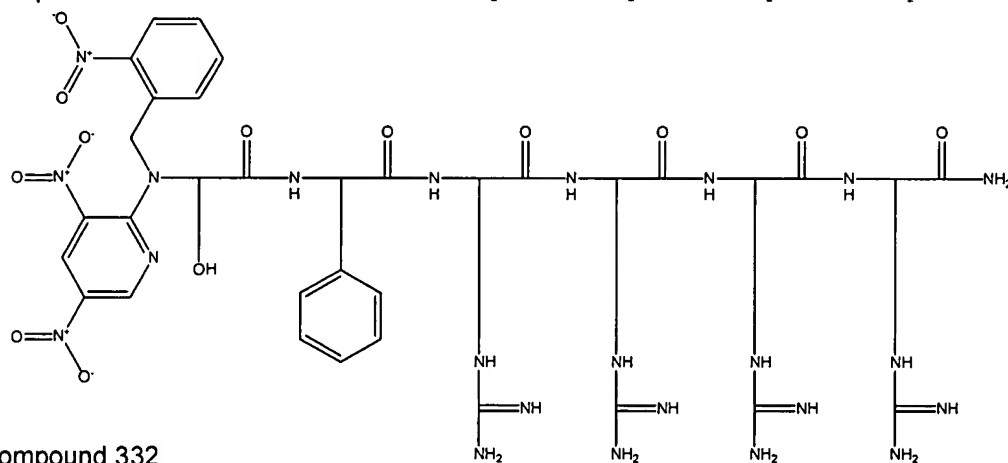
Compound 329



Compound 330

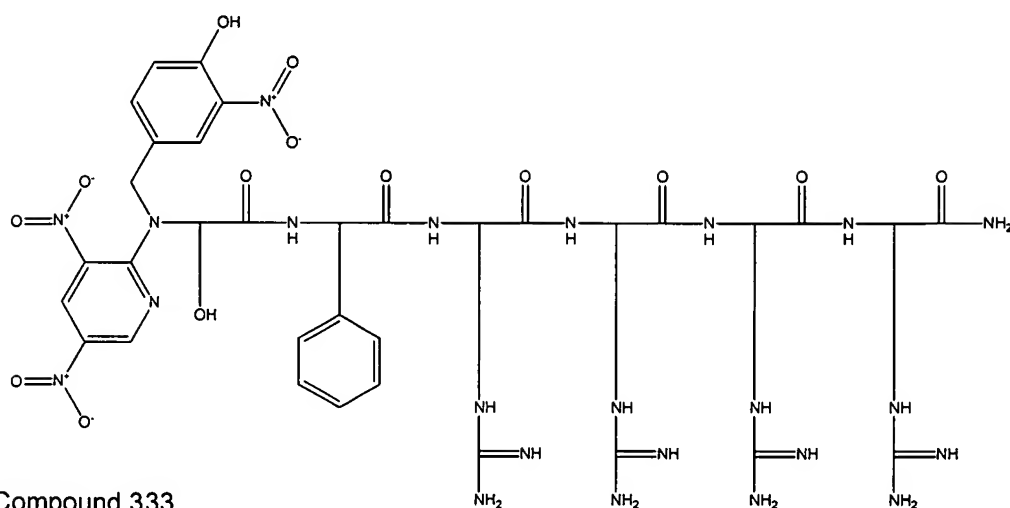


Compound 331

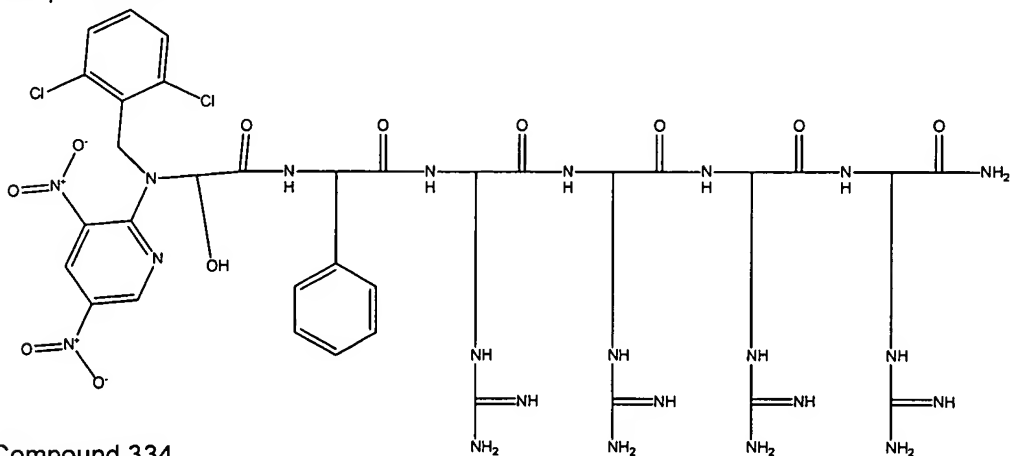


Compound 332

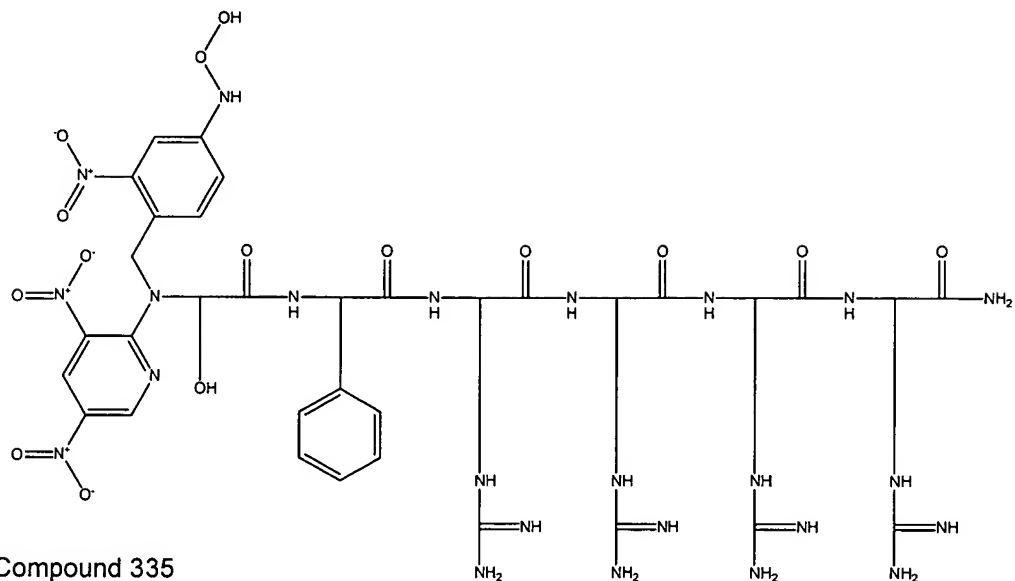
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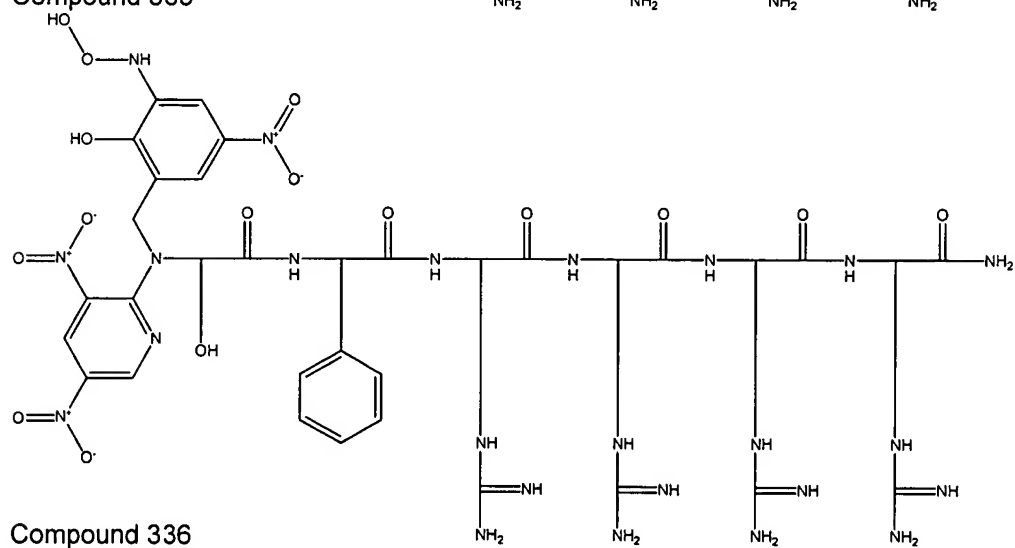
Compound 333



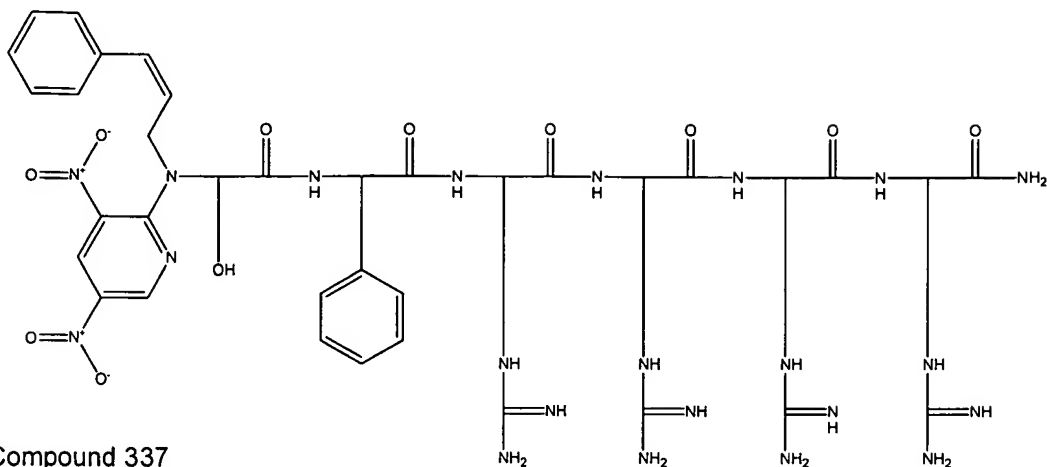
Compound 334



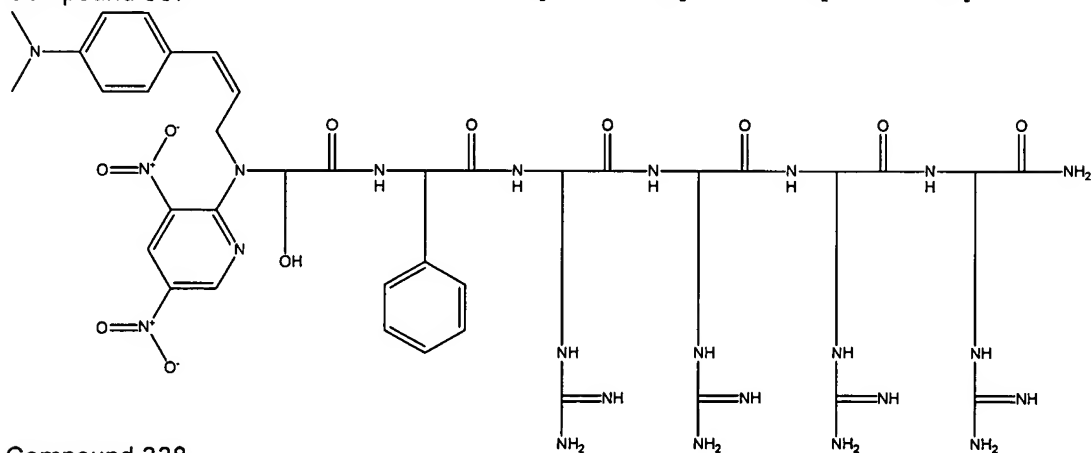
Compound 335



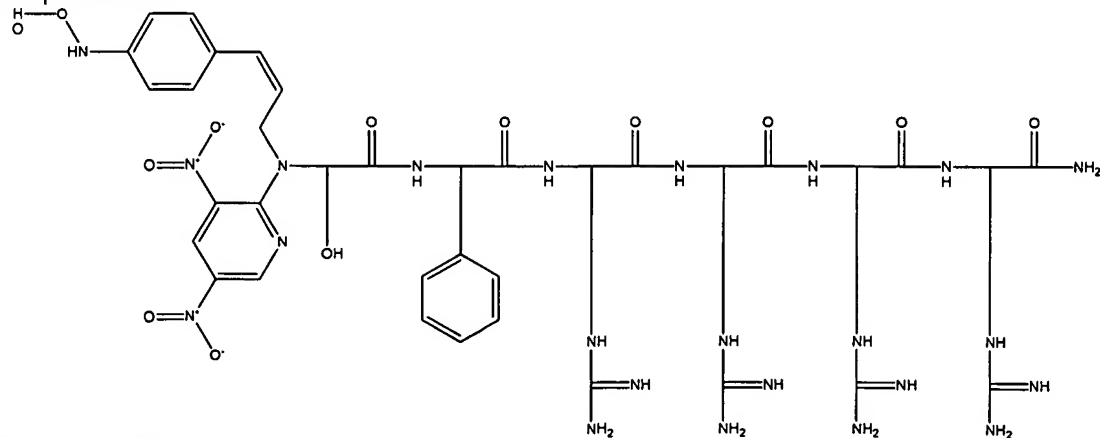
Compound 336



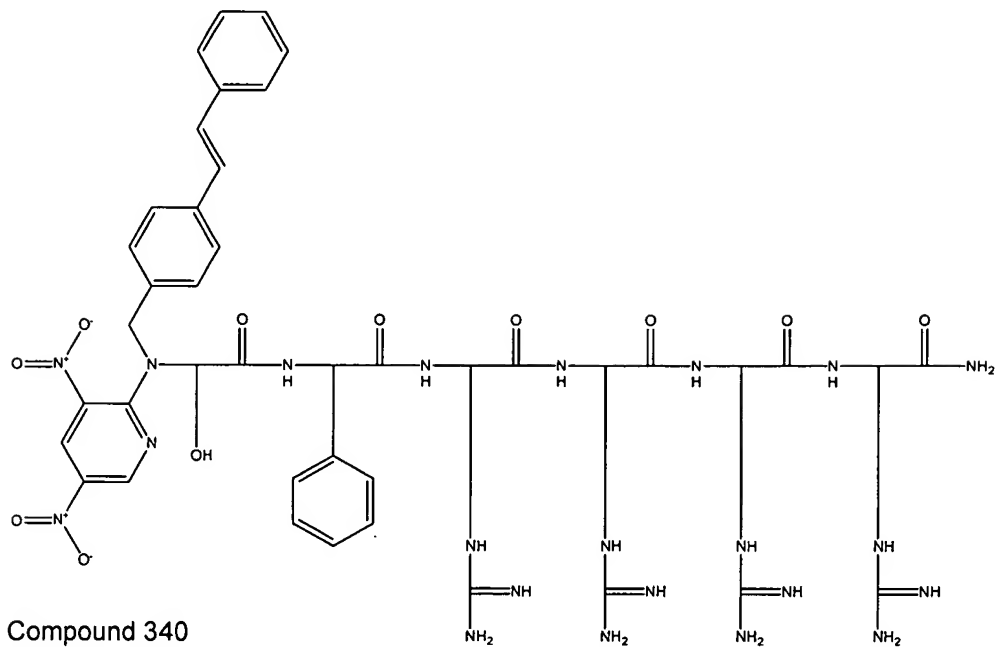
Compound 337



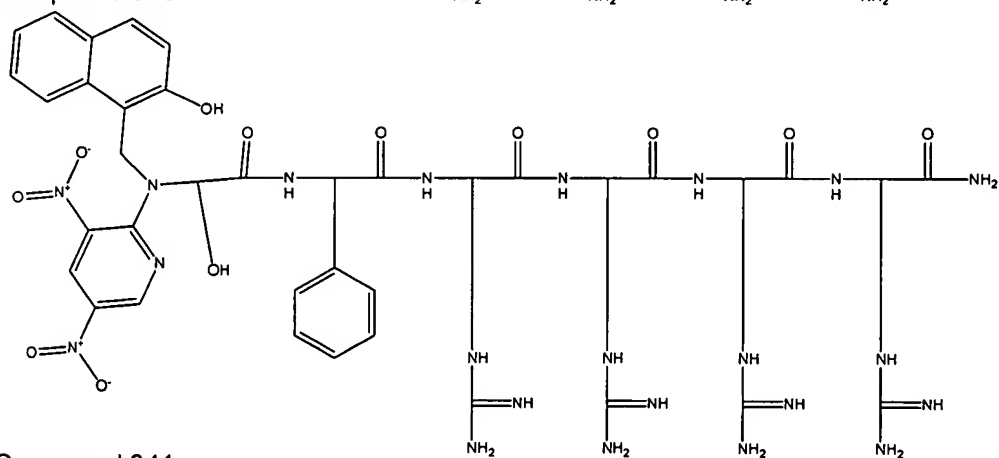
Compound 338



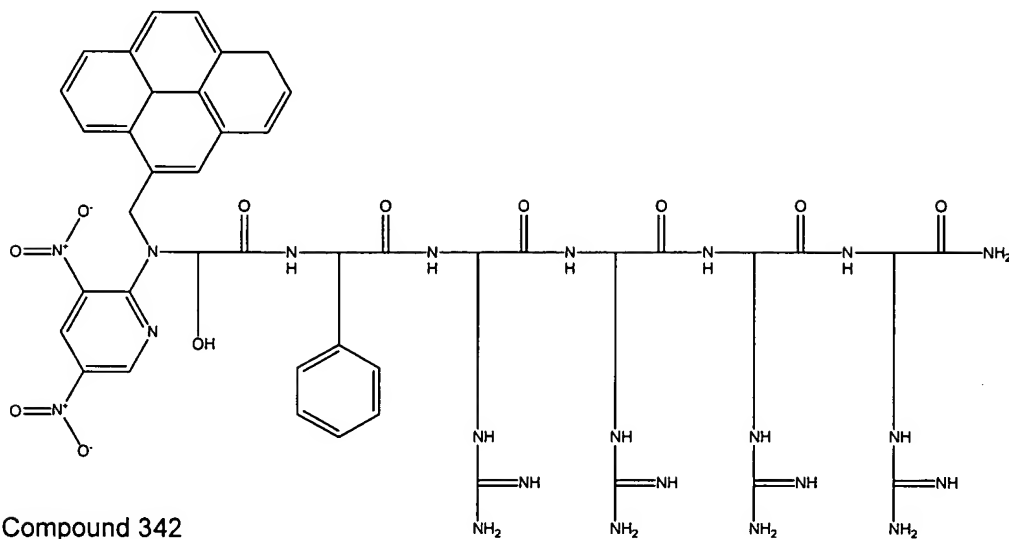
Compound 339



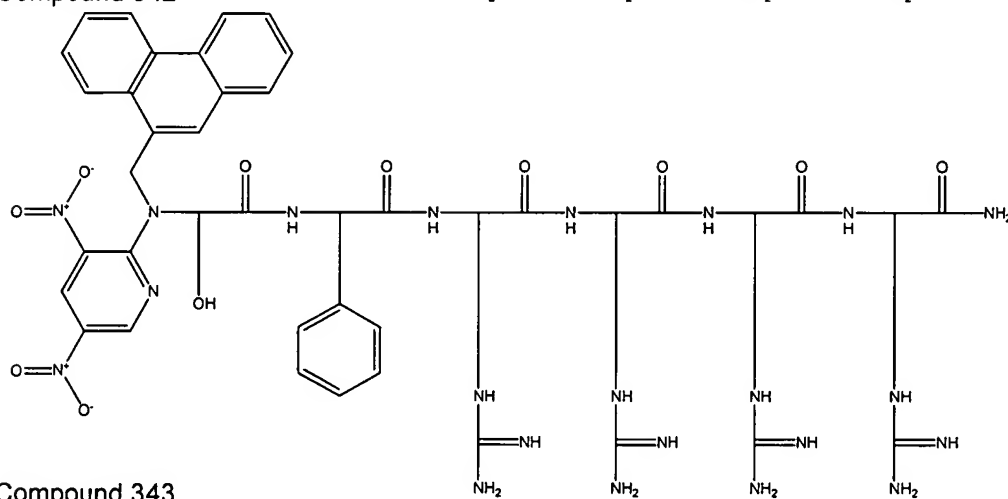
Compound 340



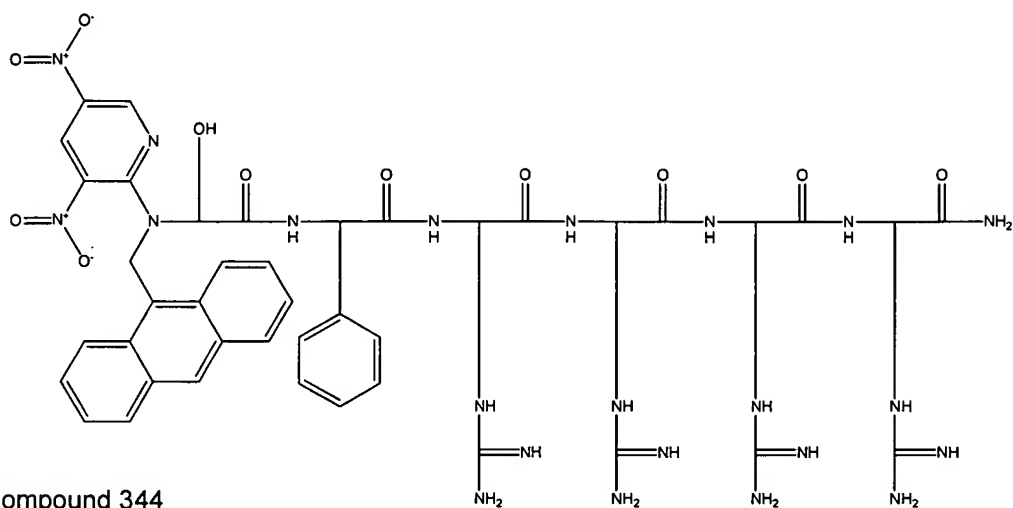
Compound 341



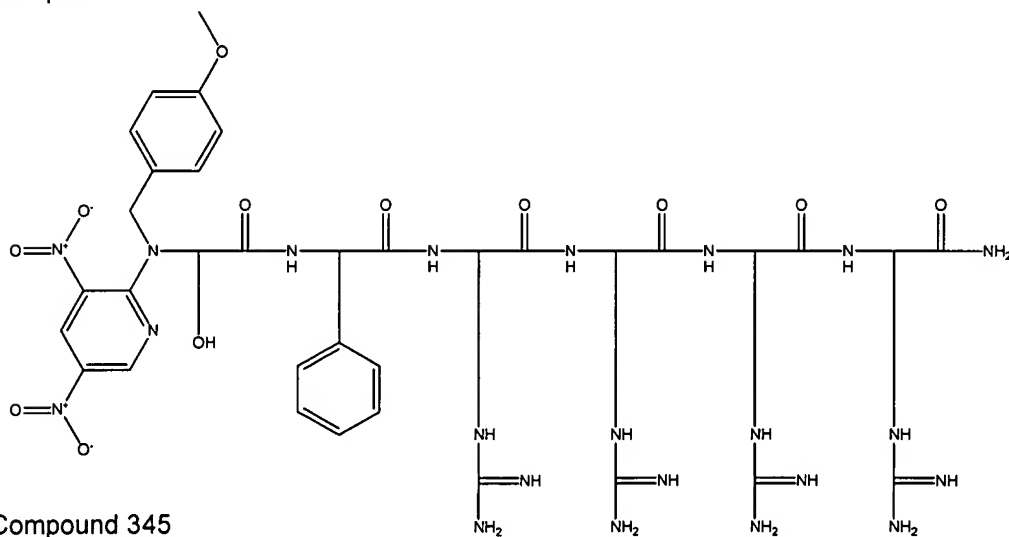
Compound 342



Compound 343



Compound 344



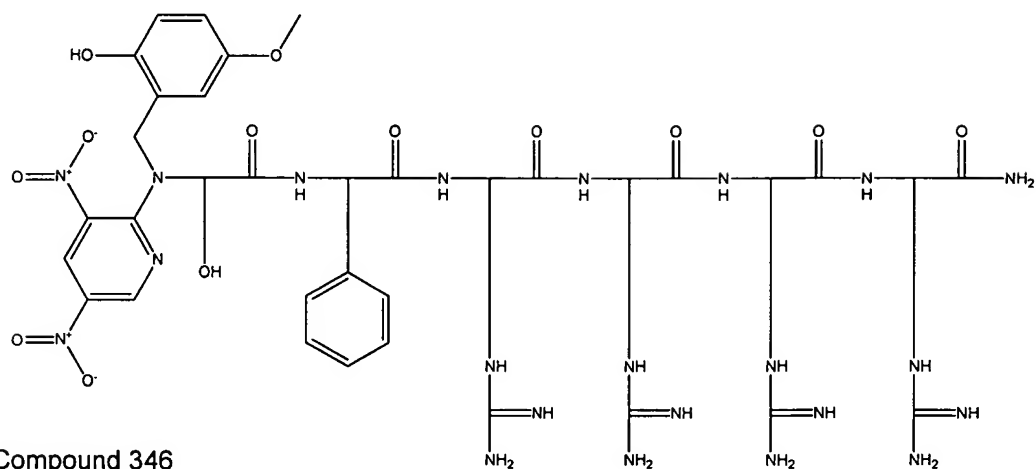
Compound 345

Applicant: David S. Lawrence

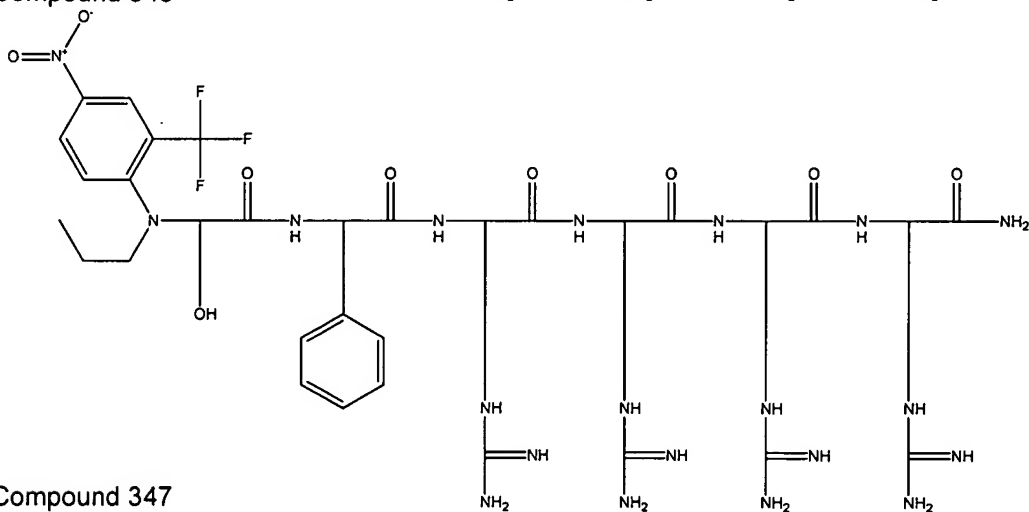
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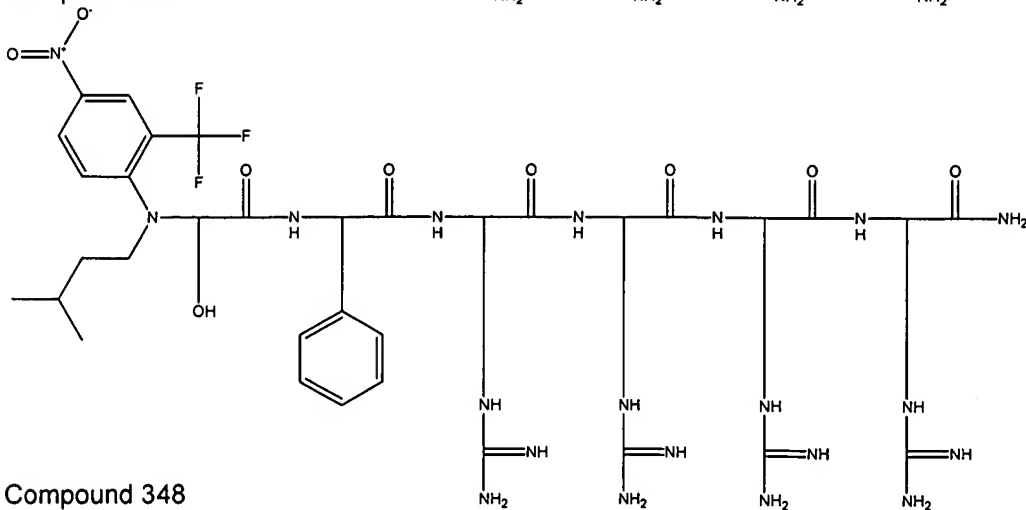
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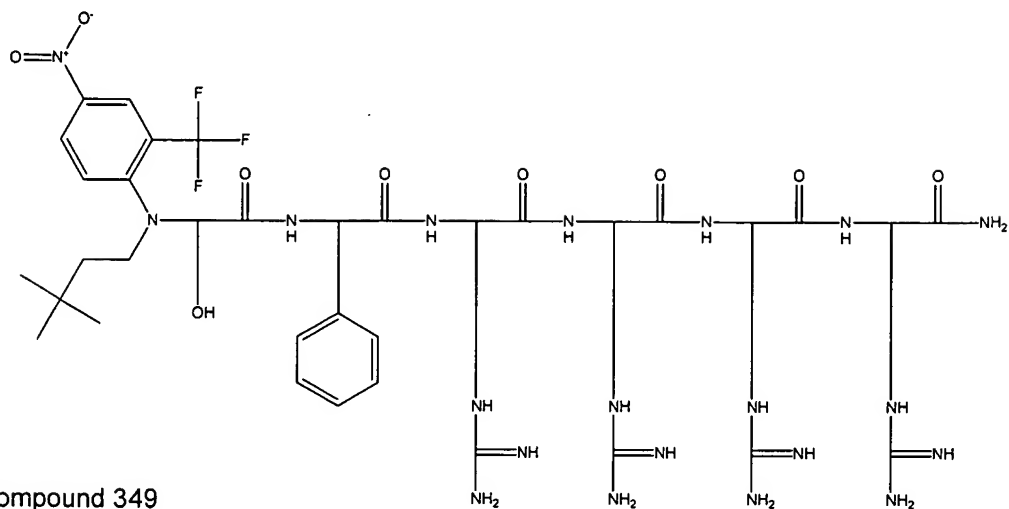
Compound 346



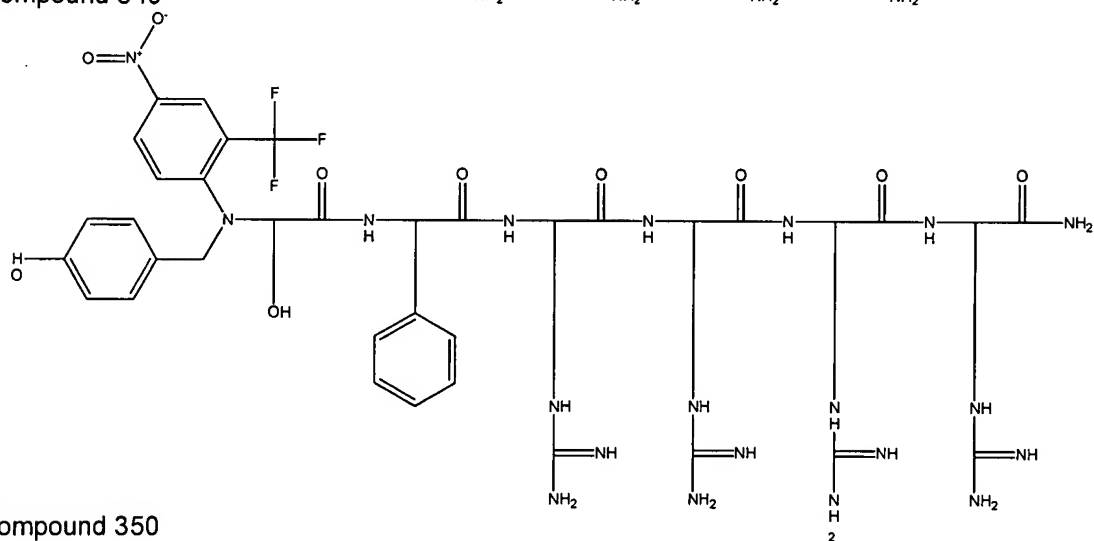
Compound 347



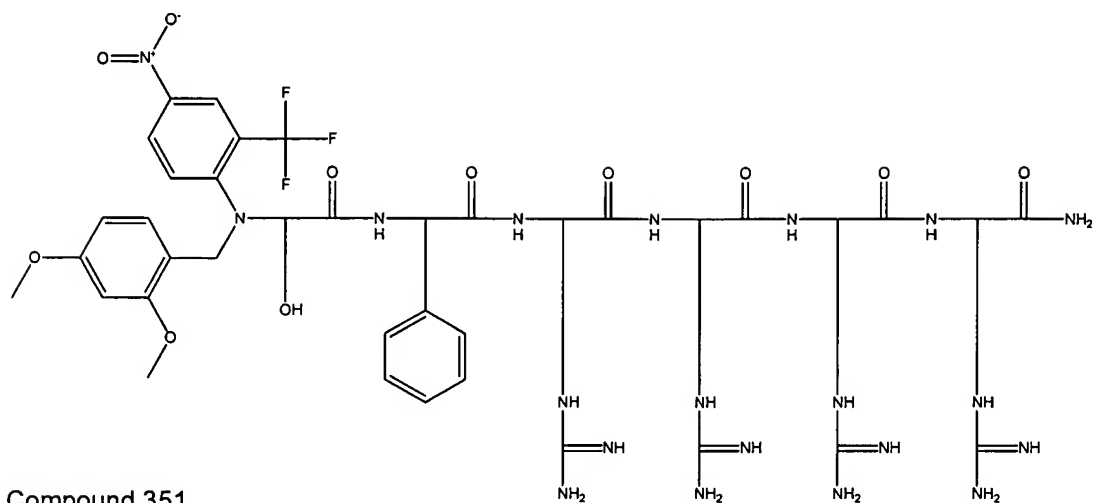
Compound 348



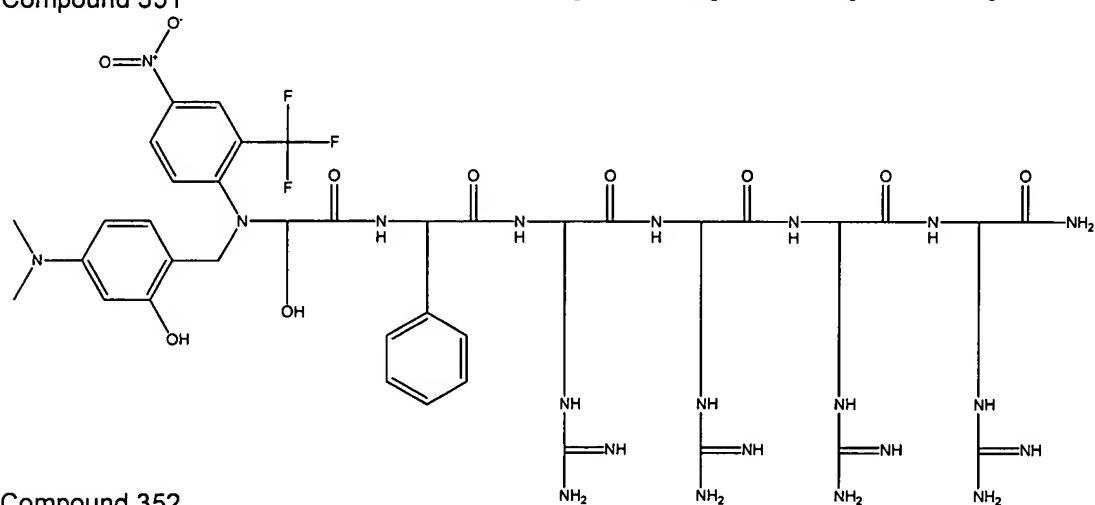
Compound 349



Compound 350



Compound 351



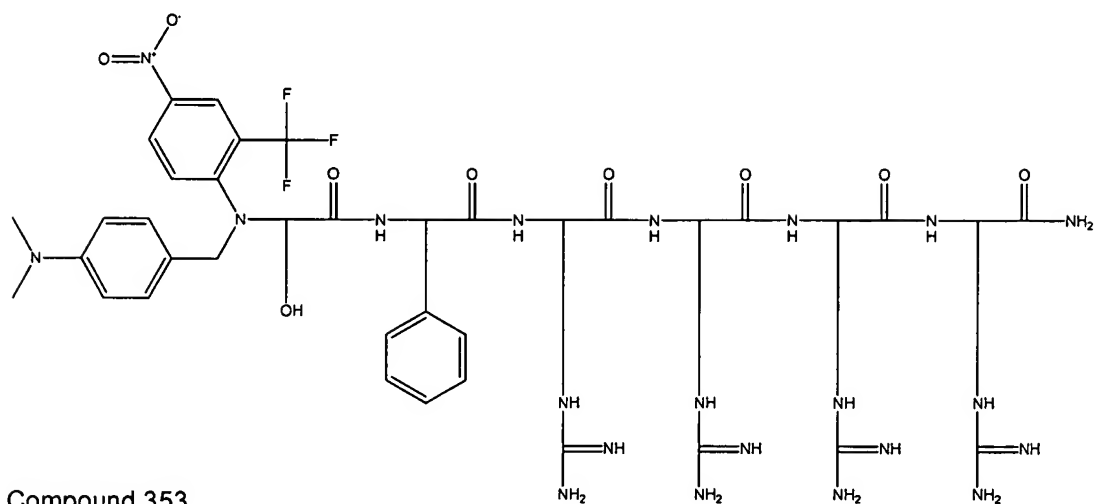
Compound 352

Applicant: David S. Lawrence

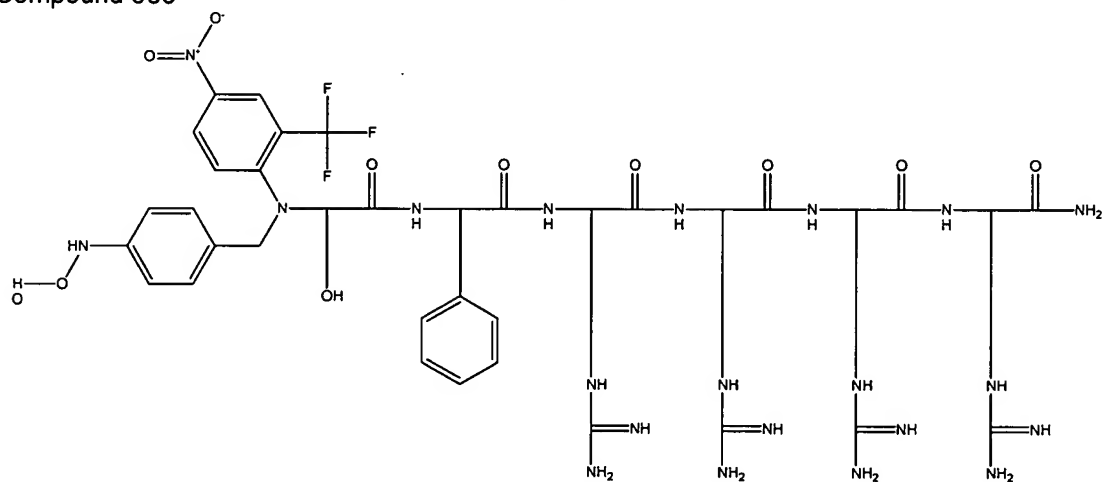
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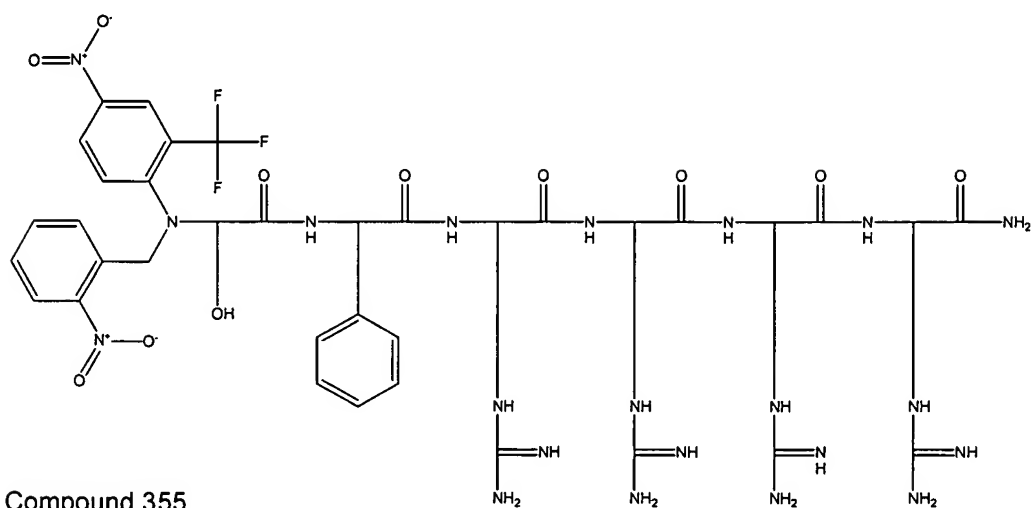


Compound 353

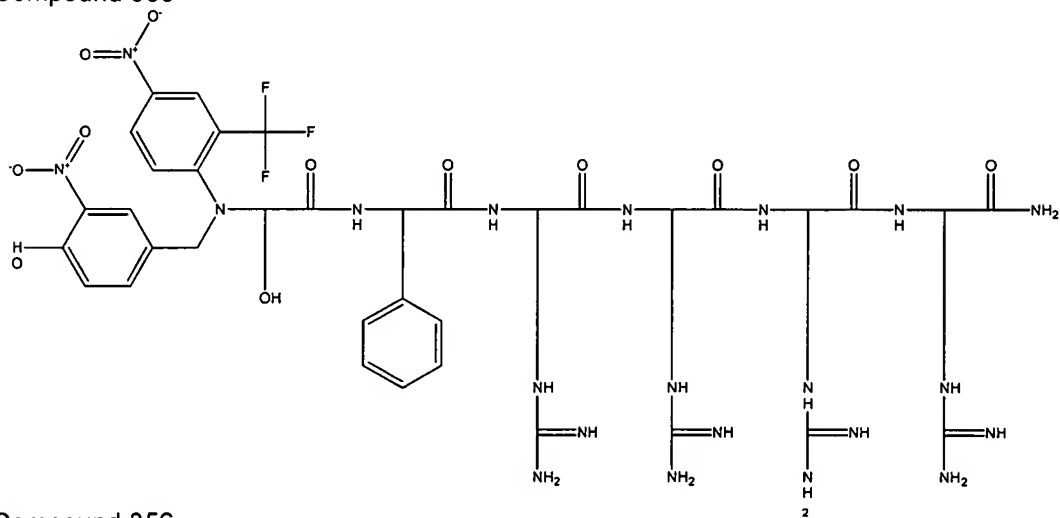


Compound 354

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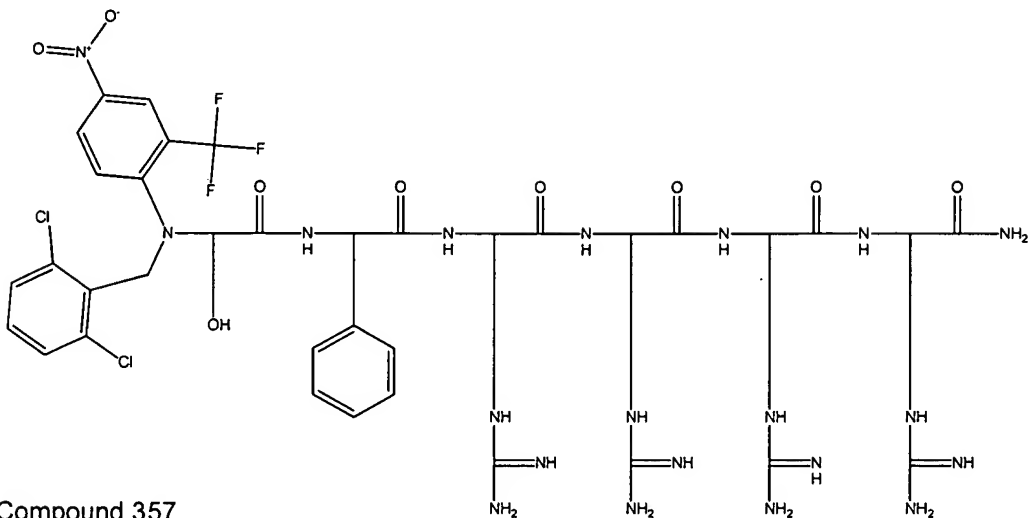


Compound 355

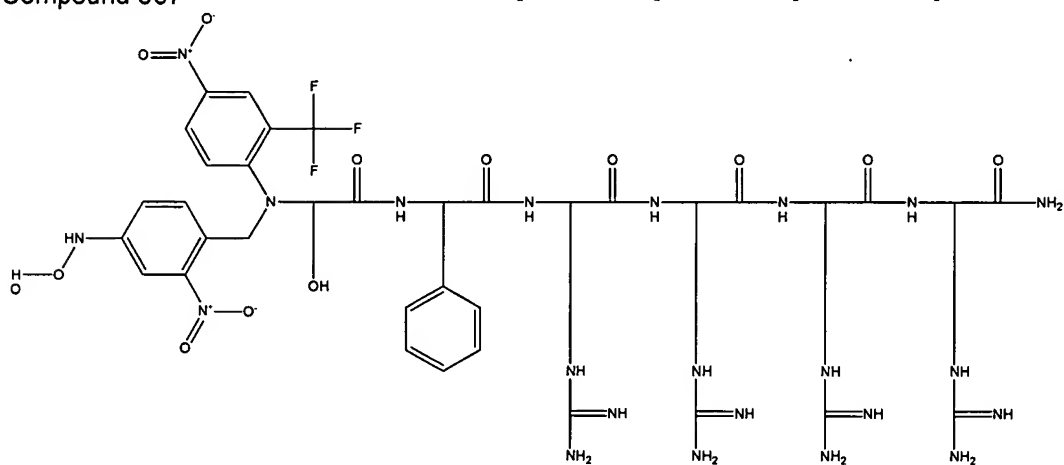


Compound 356

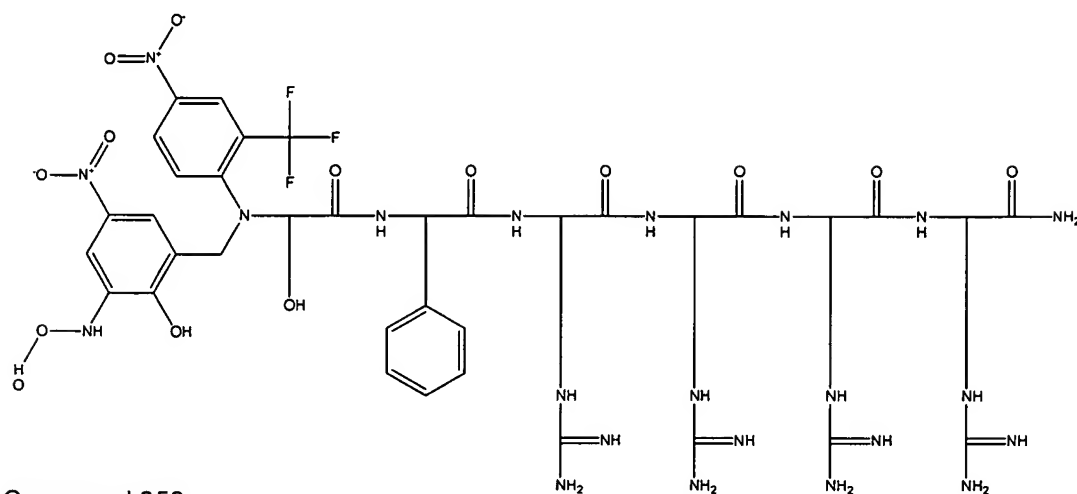
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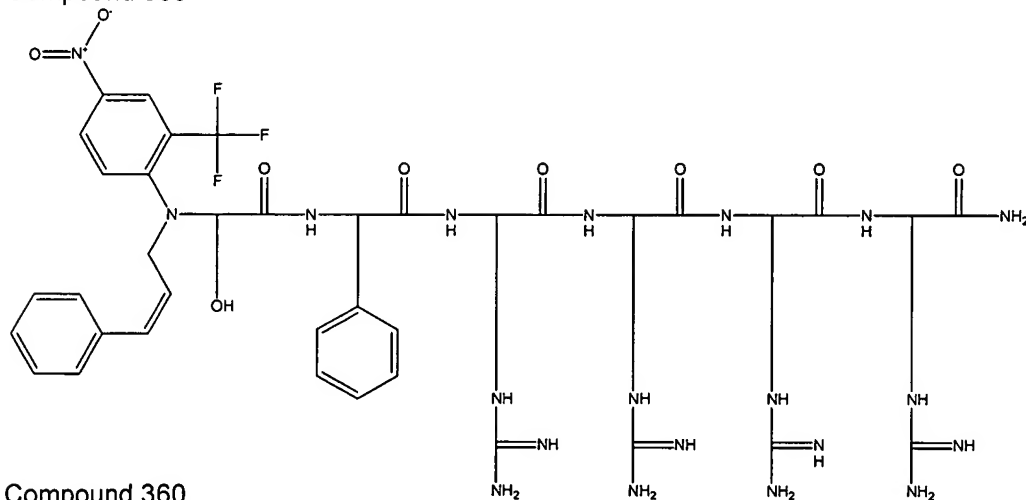
Compound 357



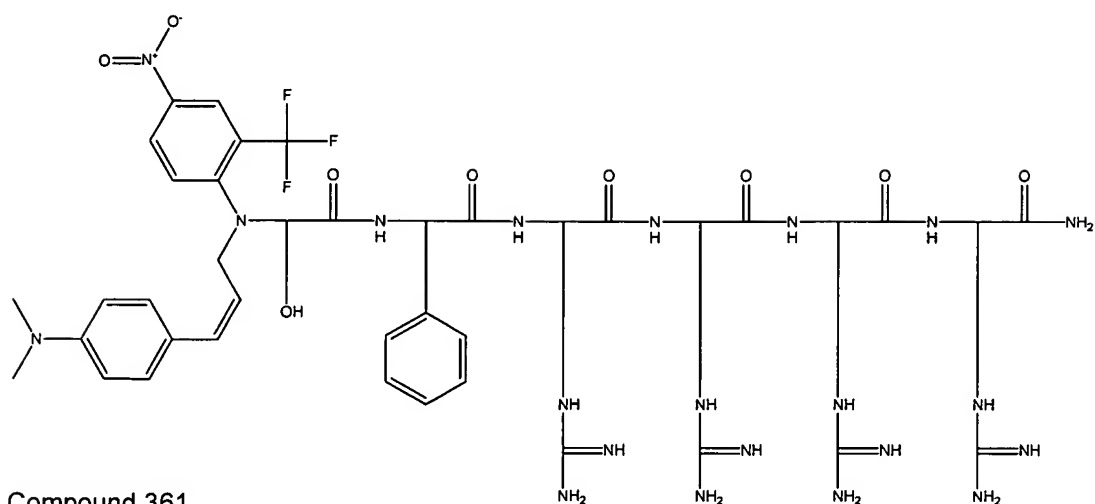
Compound 358



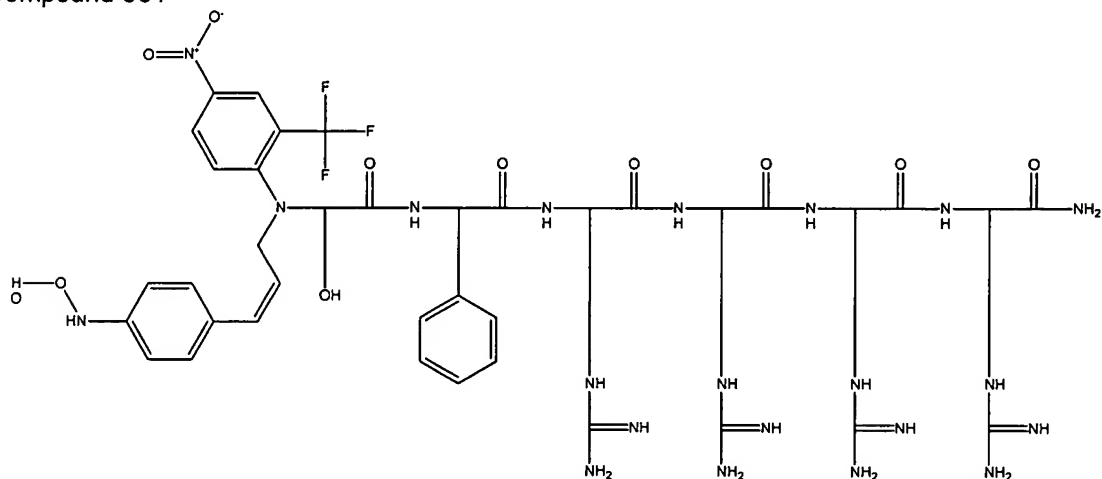
Compound 359



Compound 360

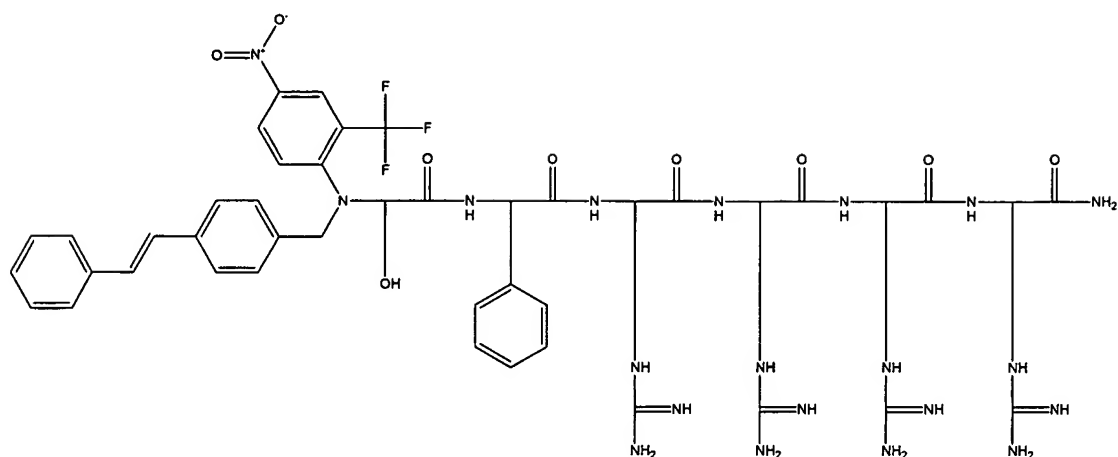


Compound 361

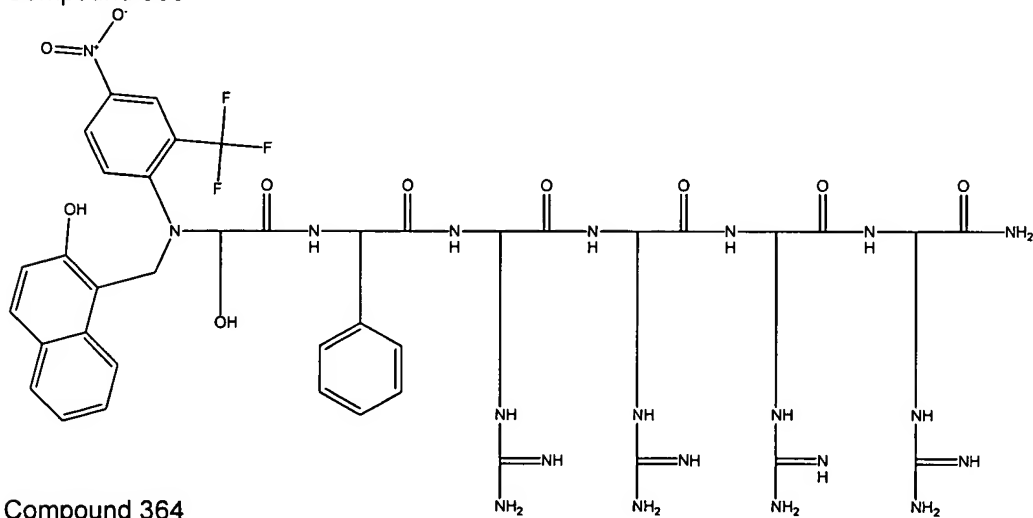


Compound 362

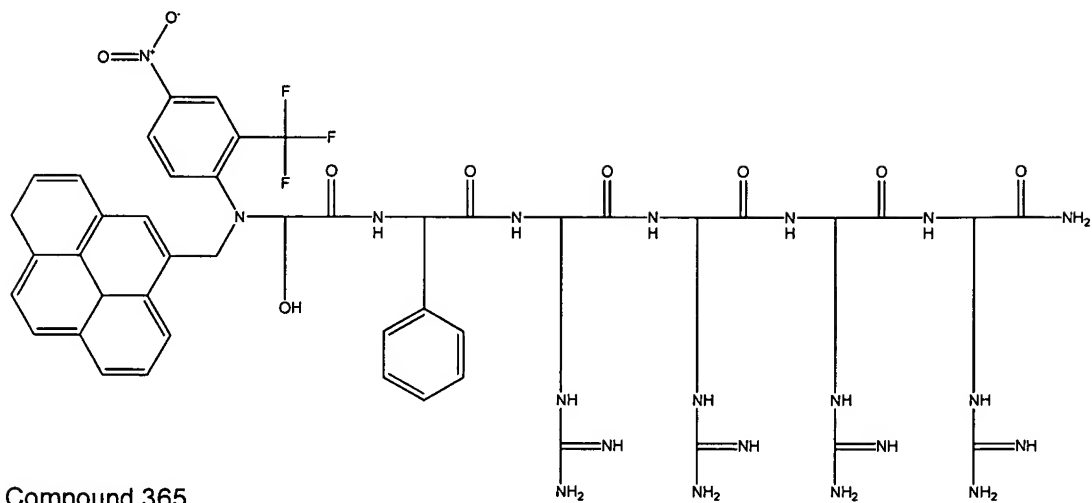
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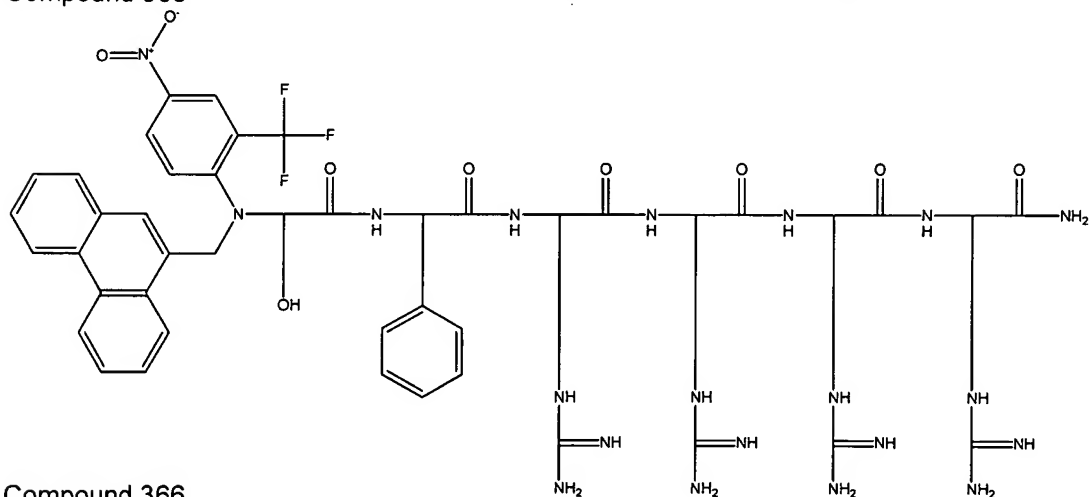
Compound 363



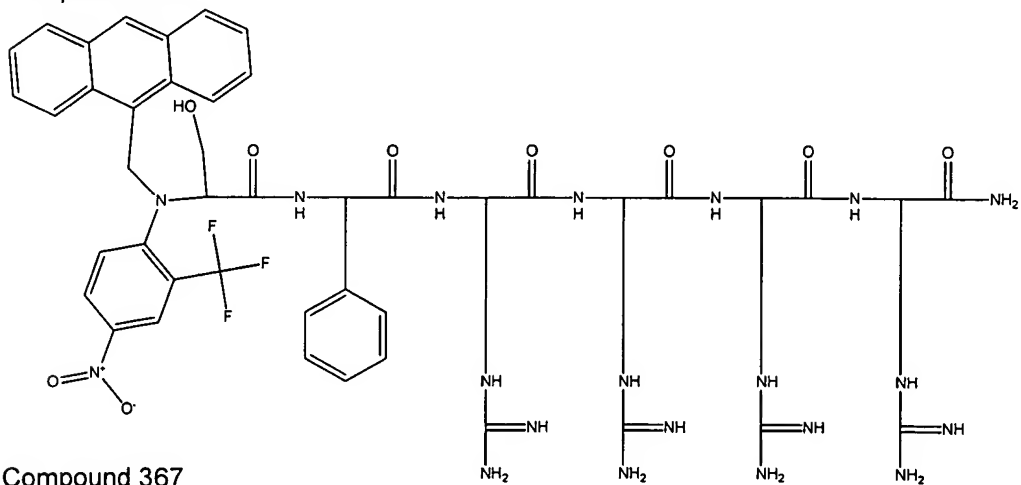
Compound 364



Compound 365



Compound 366



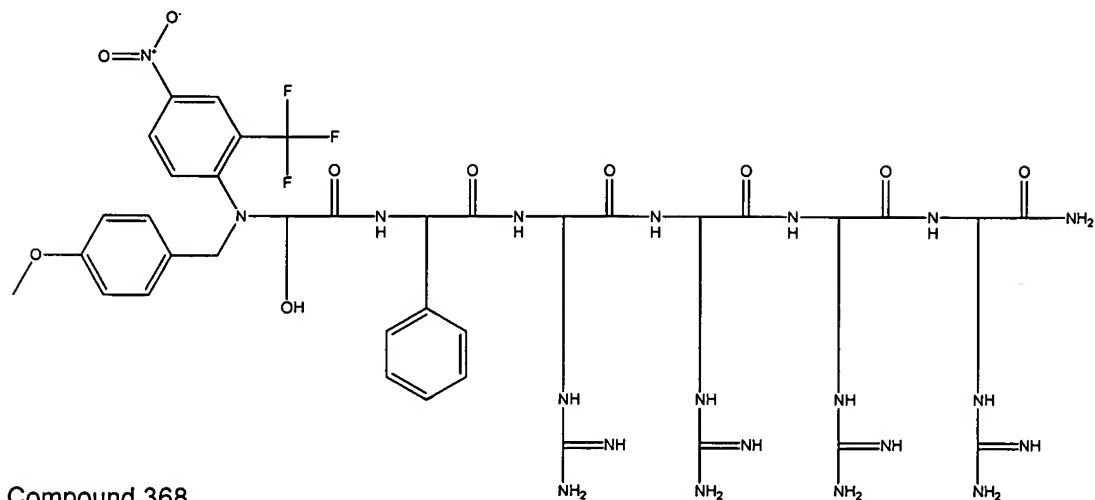
Compound 367

Applicant: David S. Lawrence

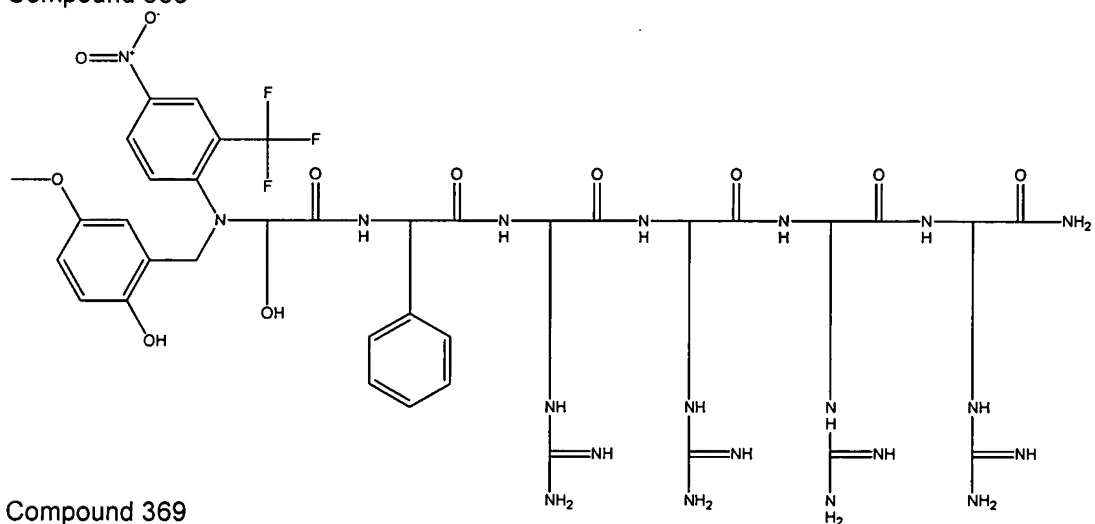
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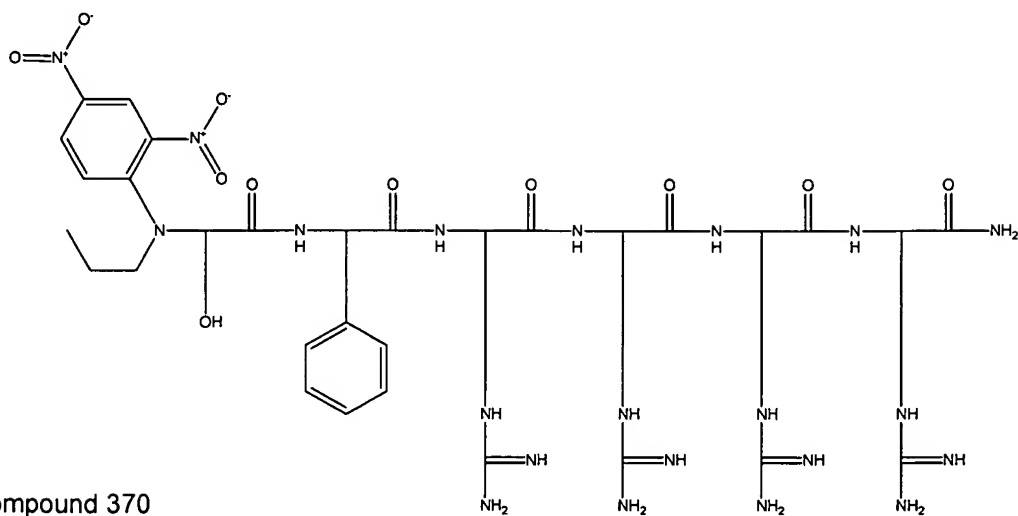


Compound 368

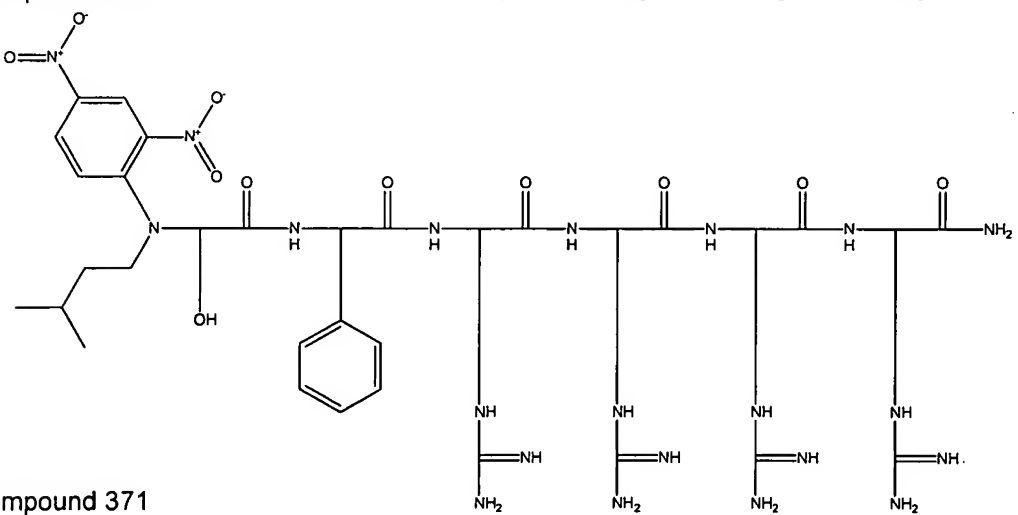


Compound 369

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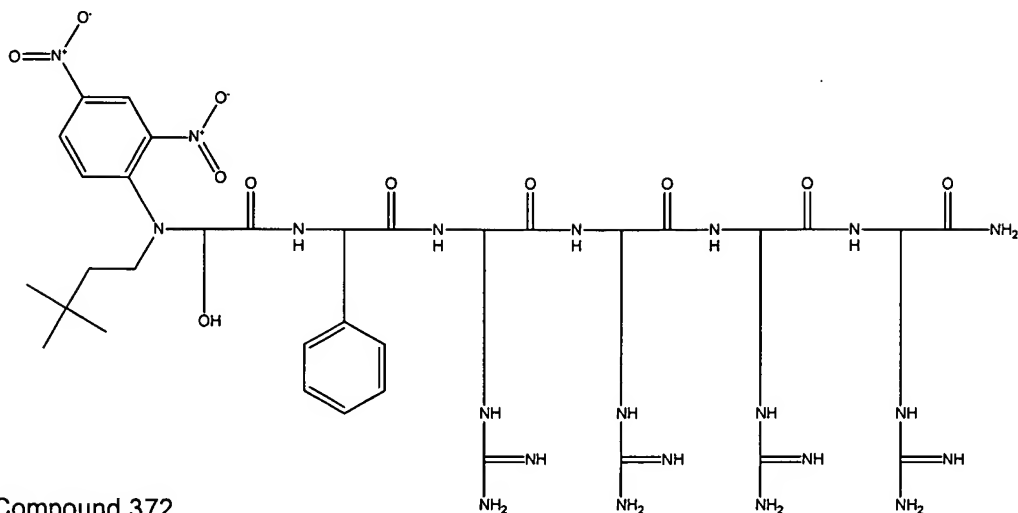


Compound 370

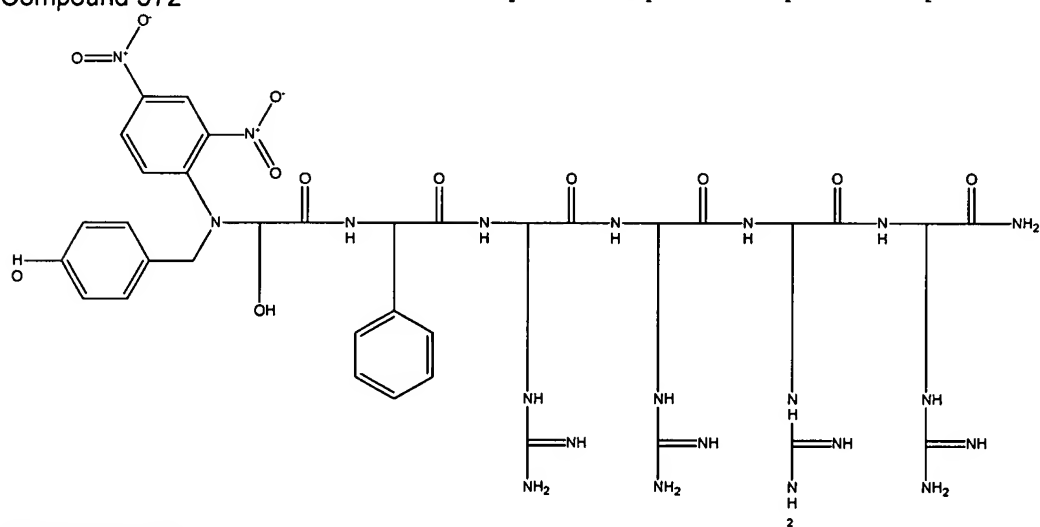


Compound 371

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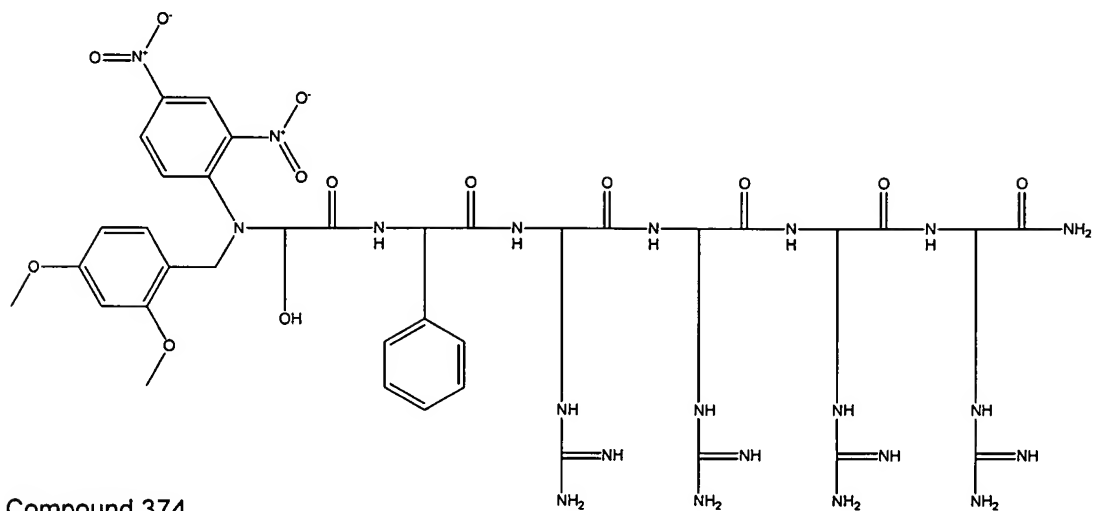


Compound 372

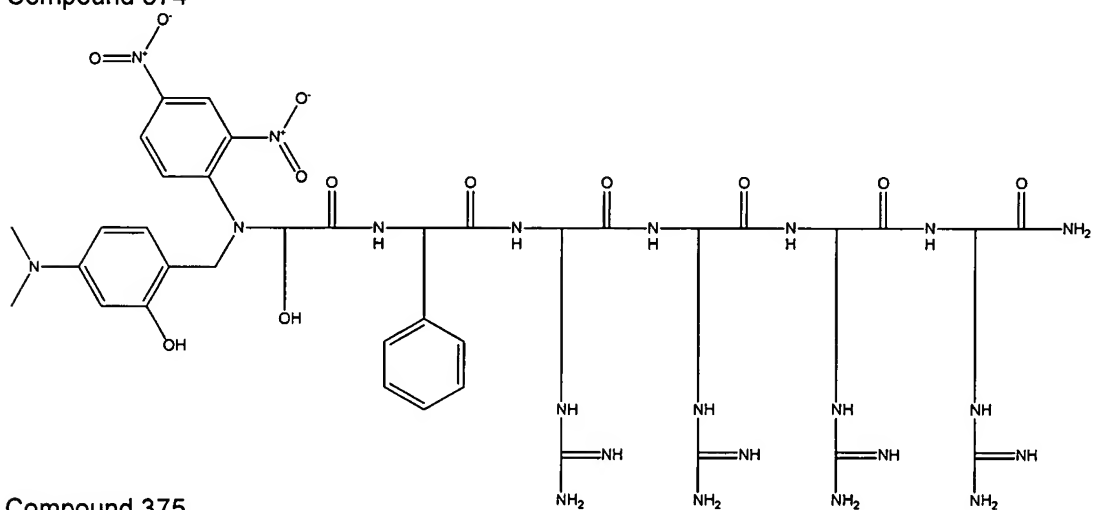


Compound 373

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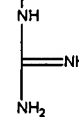


Compound 374

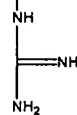


Compound 375

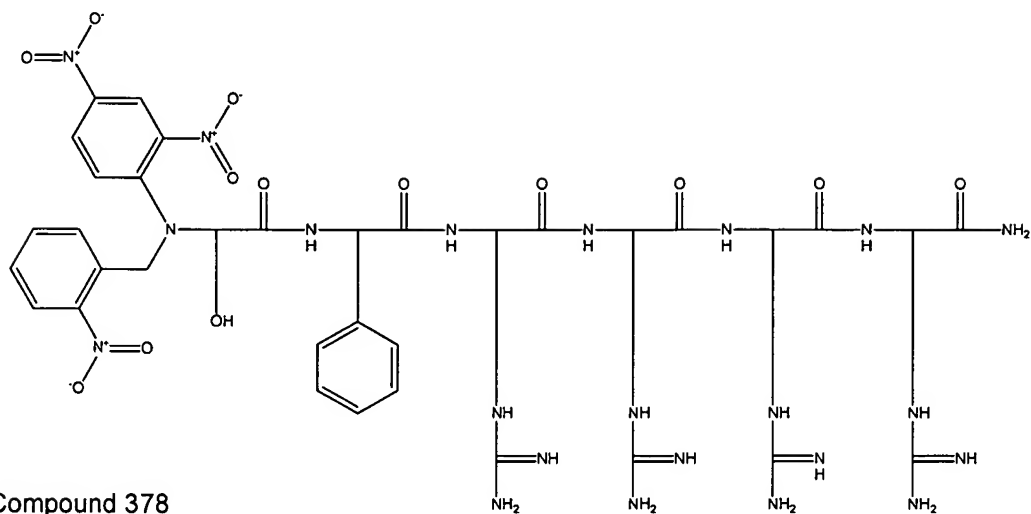
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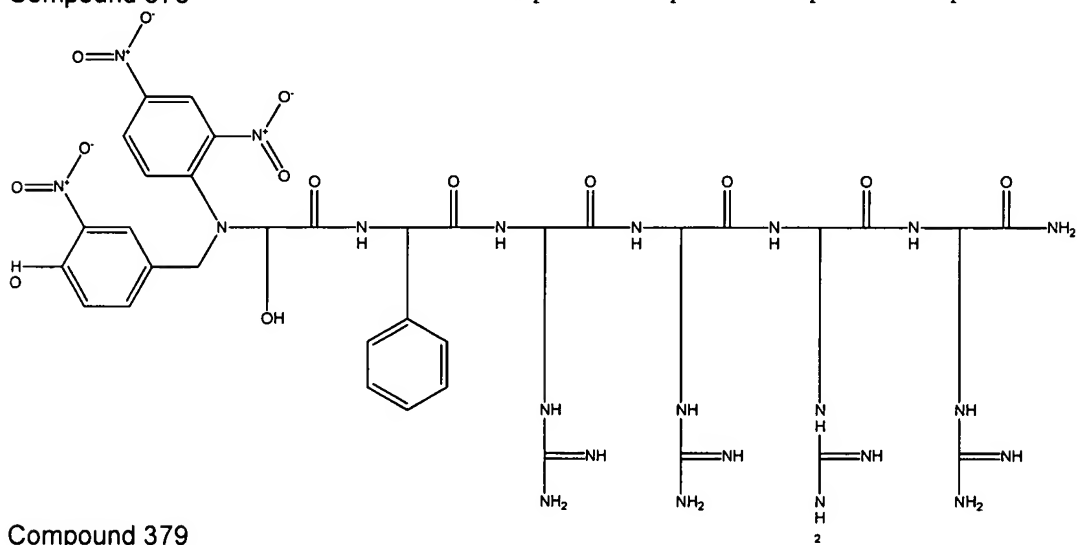
Compound 376



Compound 377



Compound 378



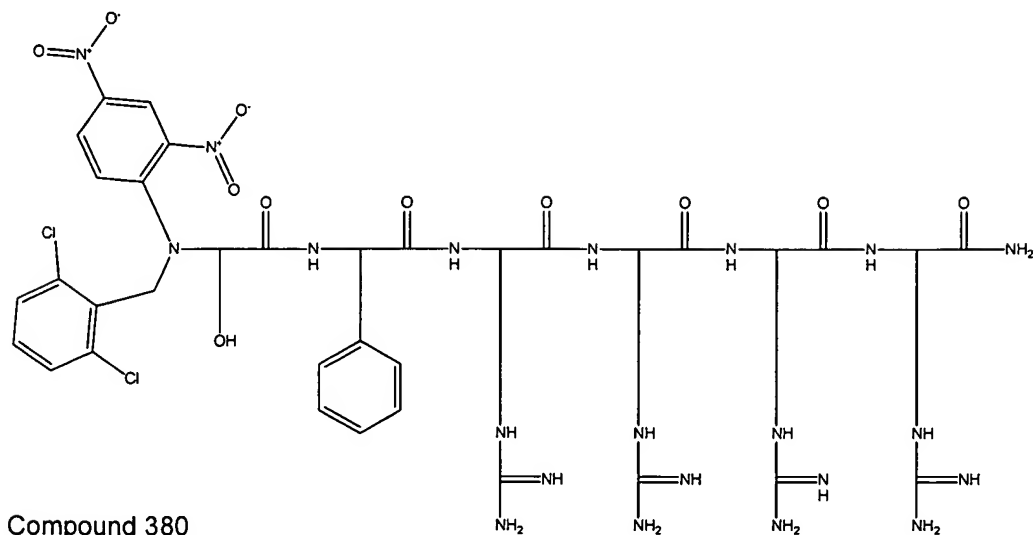
Compound 379

Applicant: David S. Lawrence

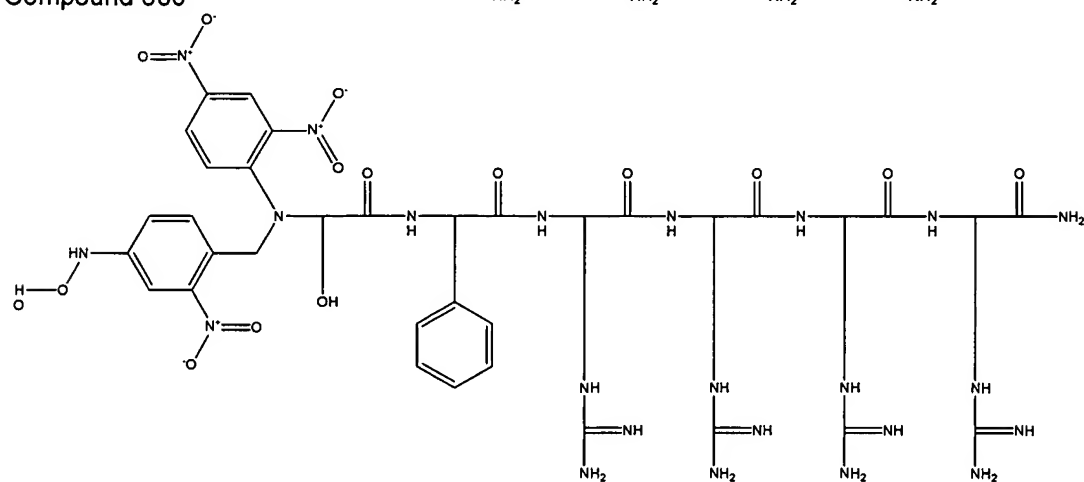
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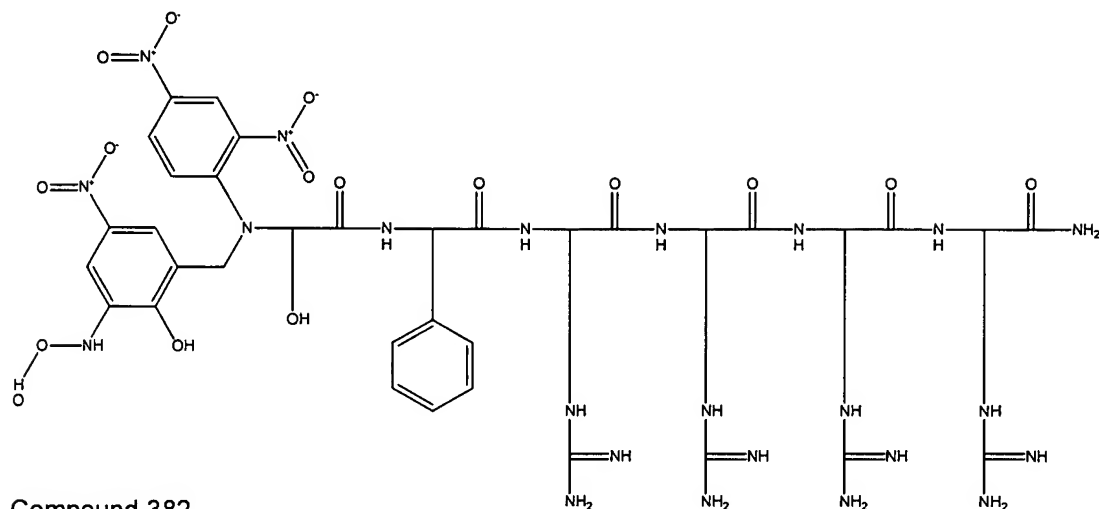


Compound 380

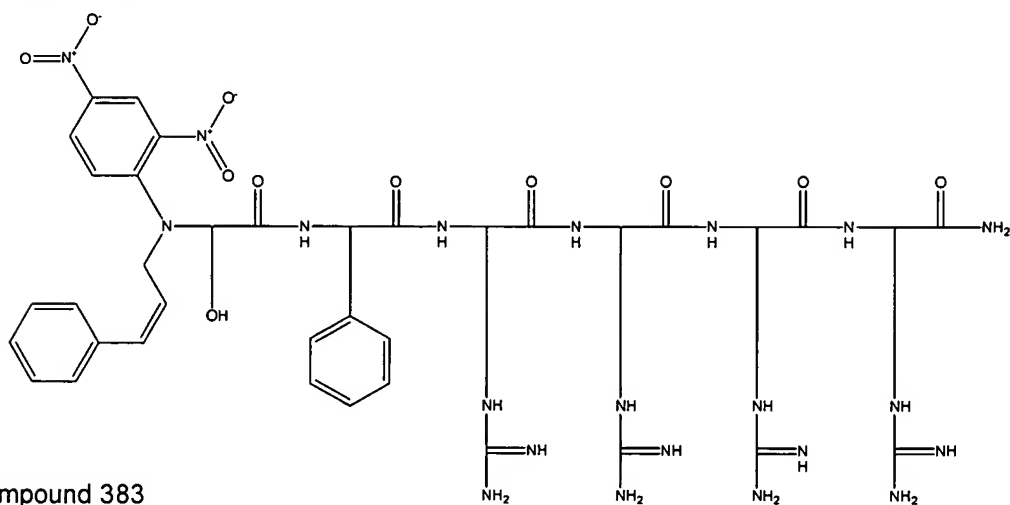


Compound 381

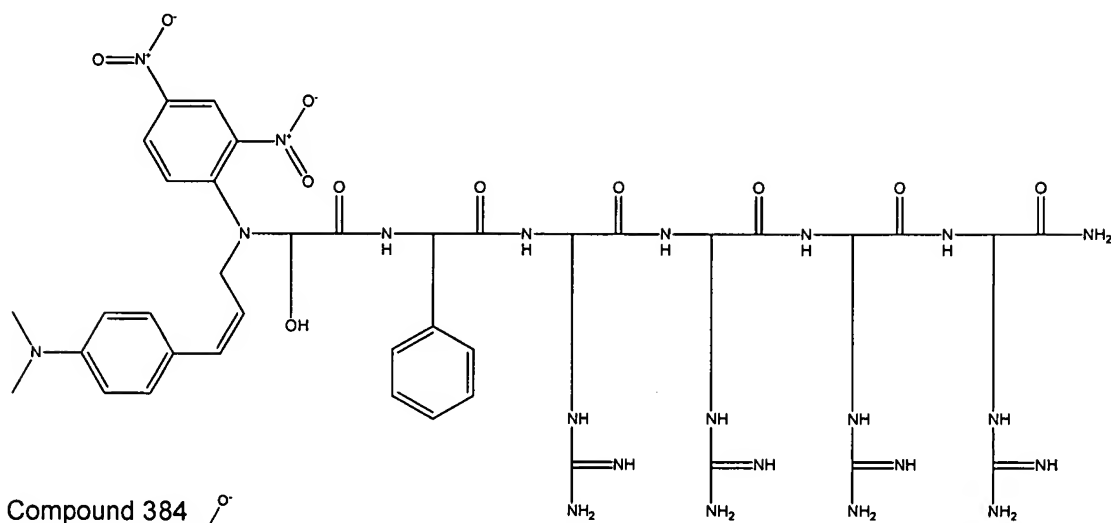
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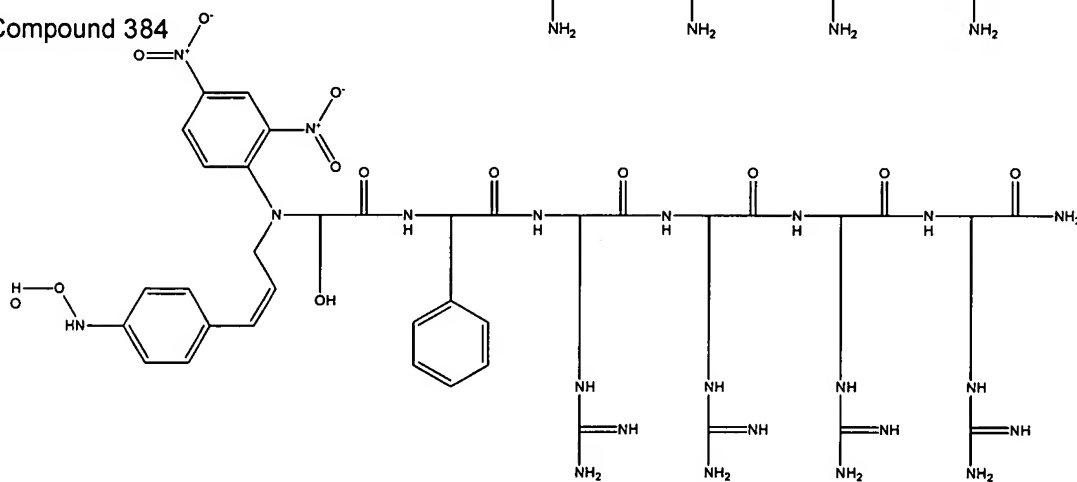
Compound 382



Compound 383

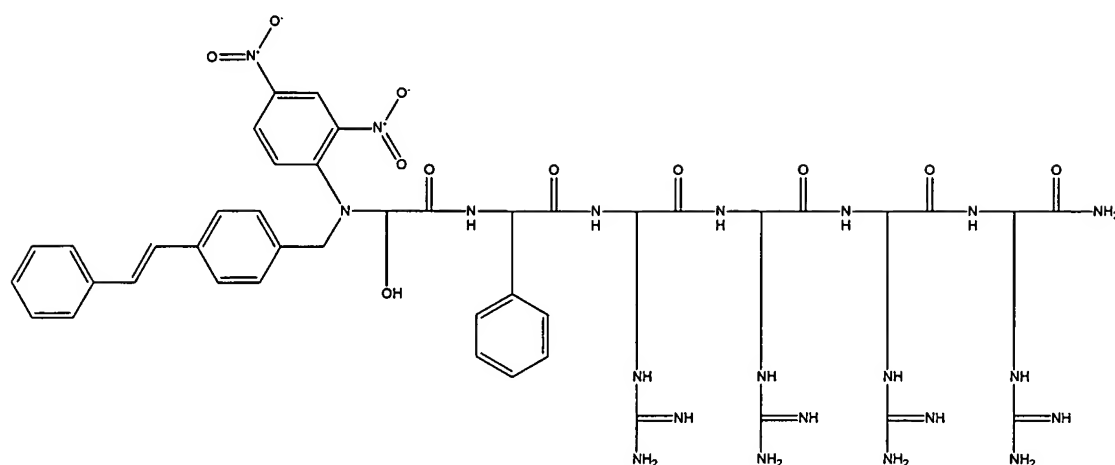


Compound 384

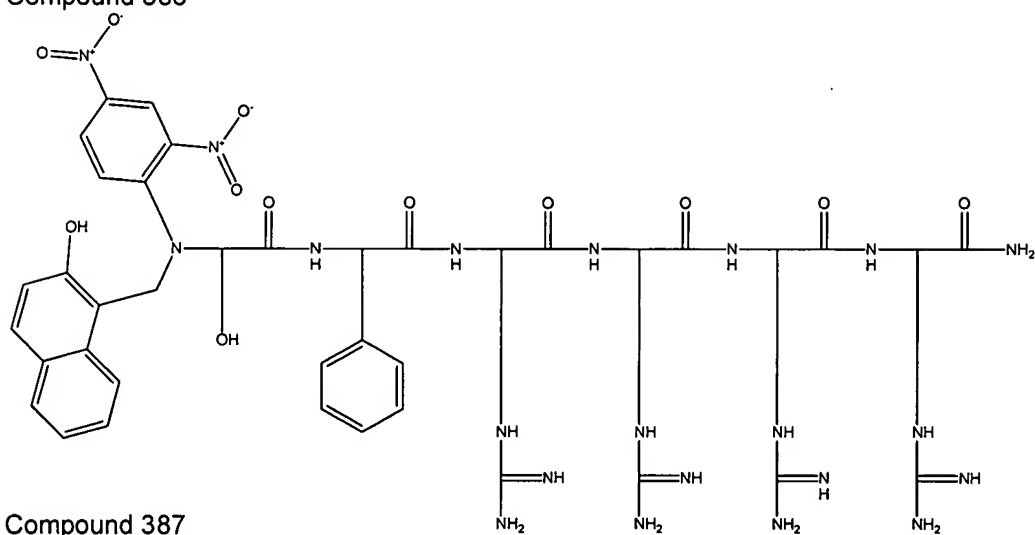


Compound 385

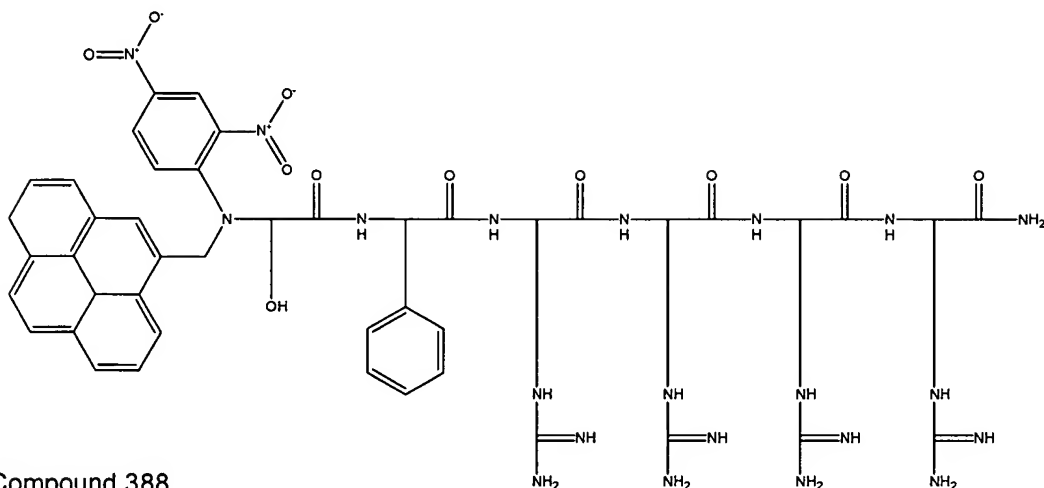
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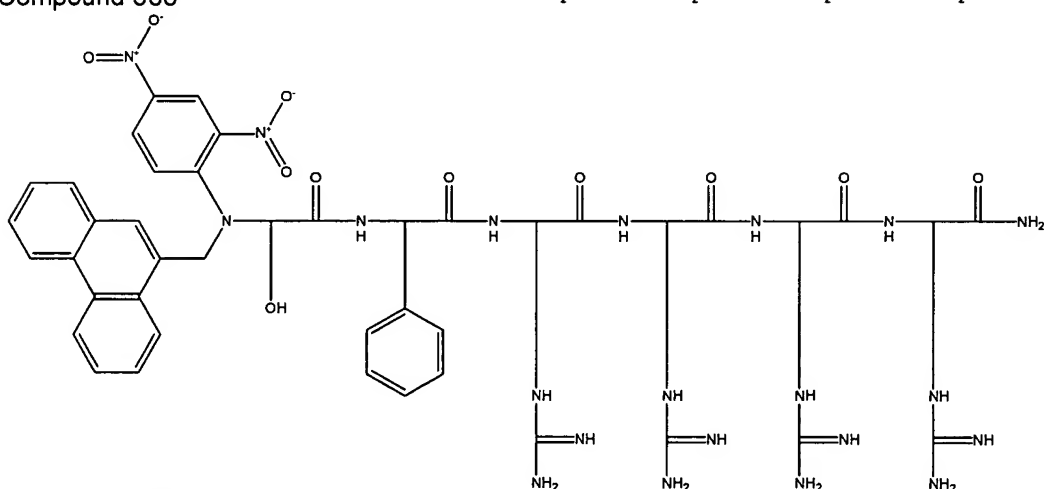
Compound 386



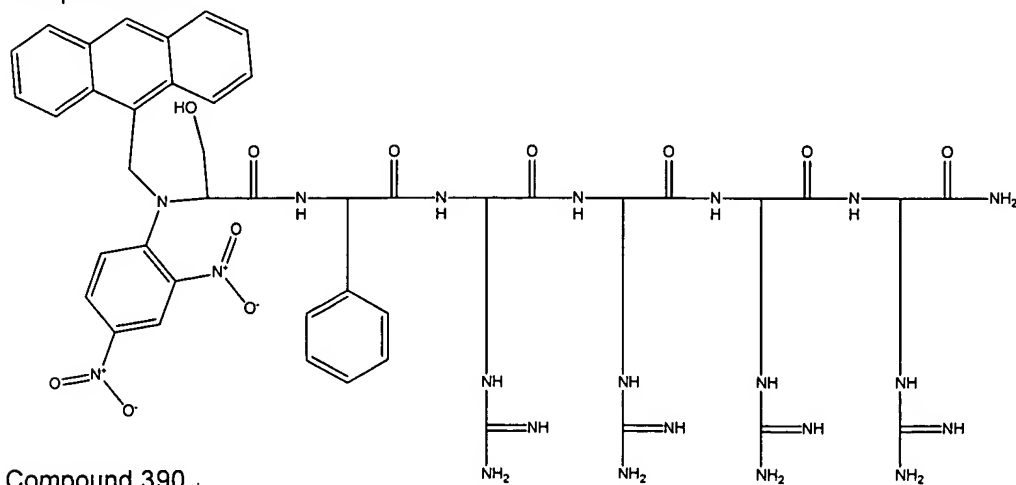
Compound 387



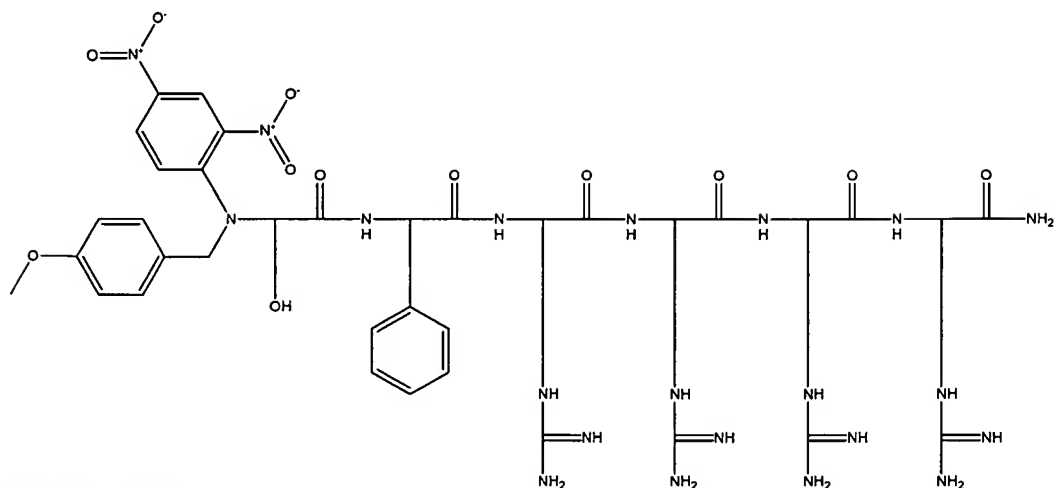
Compound 388



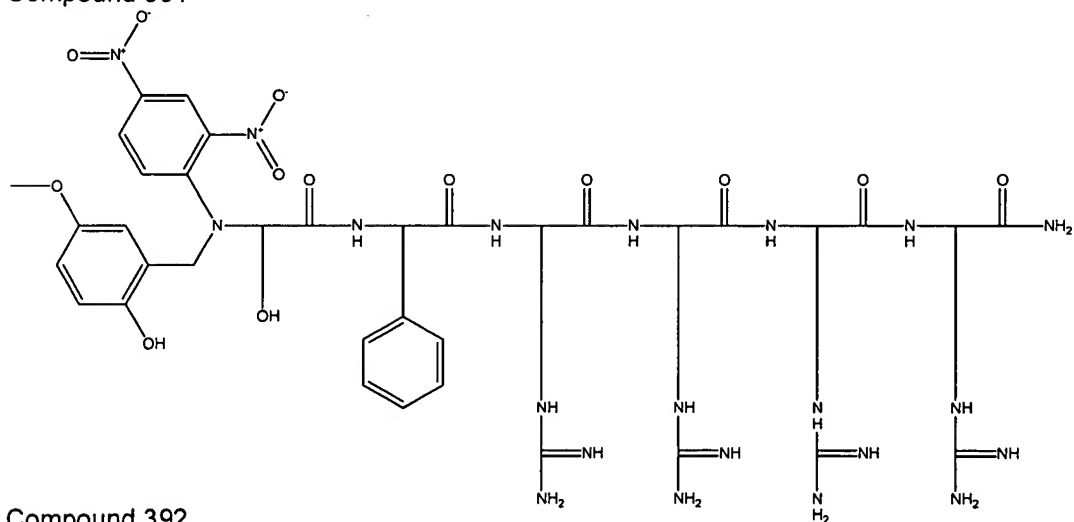
Compound 389



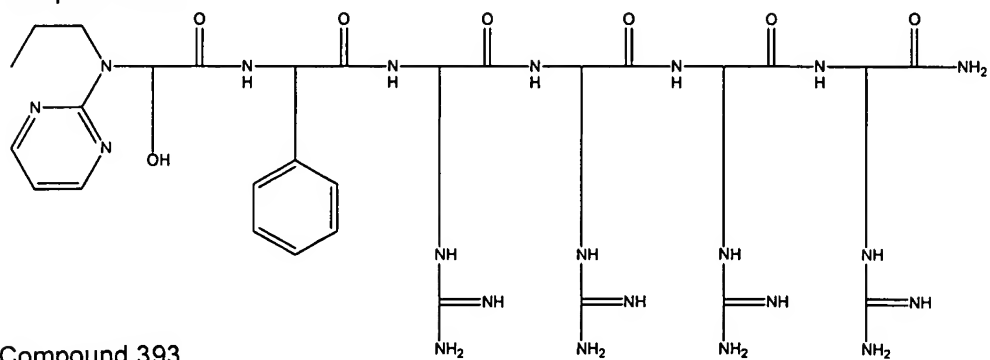
Compound 390



Compound 391



Compound 392



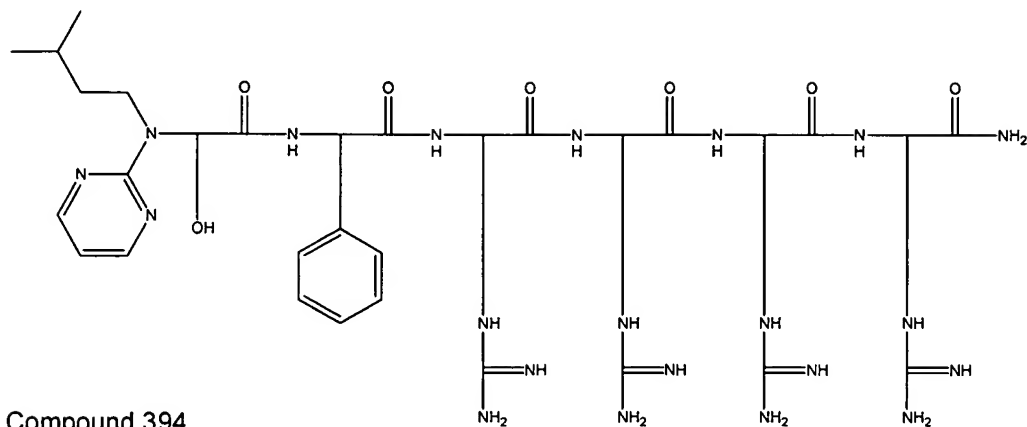
Compound 393

Applicant: David S. Lawrence

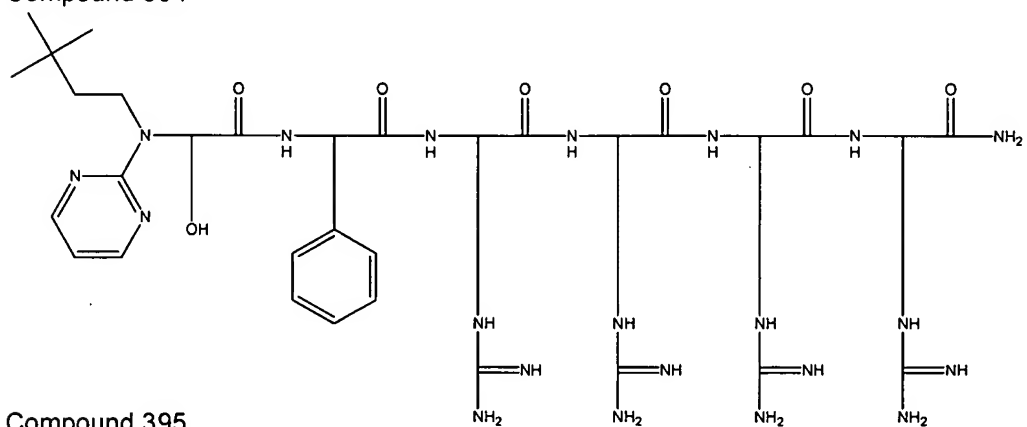
Serial No.: 10/755,086

Filed: January 9, 2004

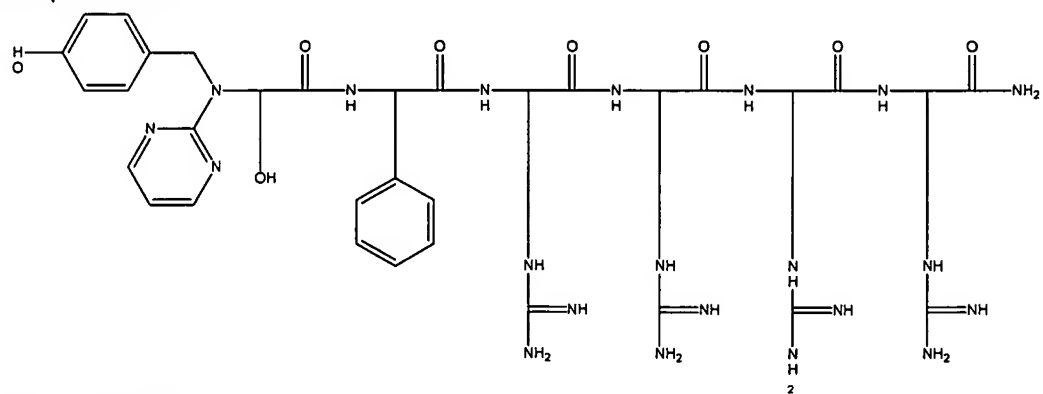
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Compound 394



Compound 395



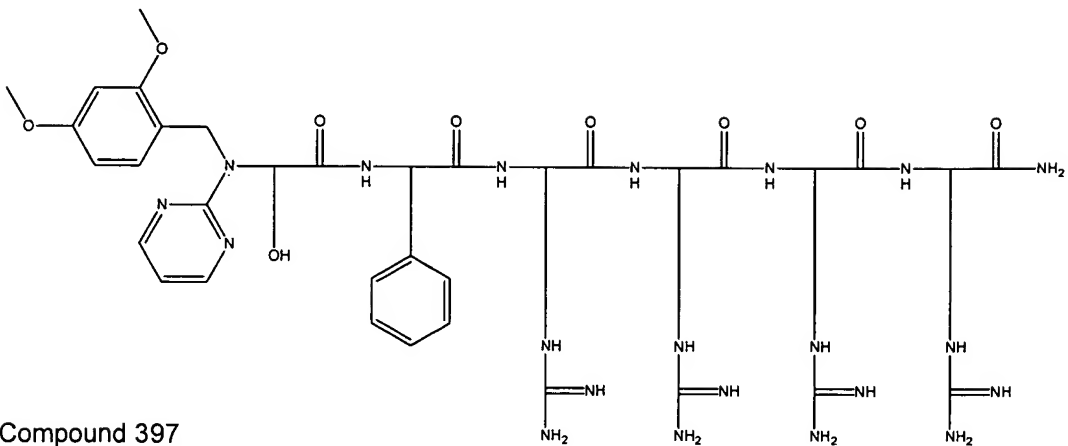
Compound 396

Applicant: David S. Lawrence

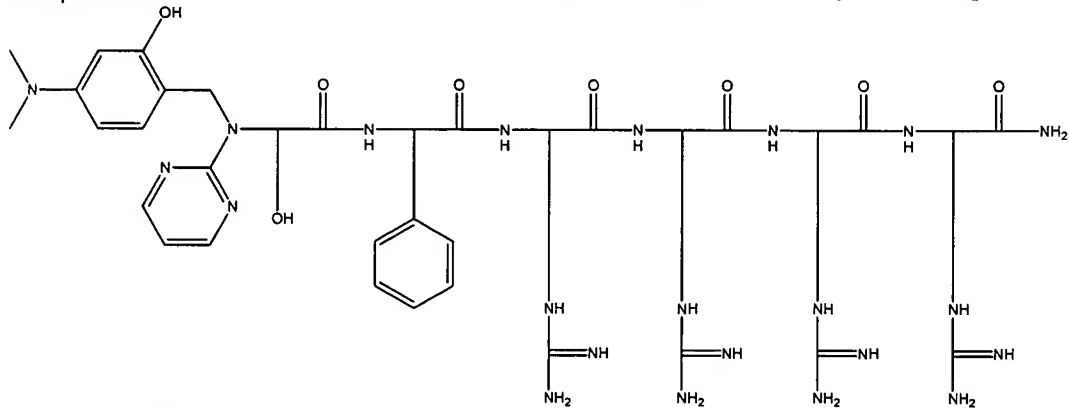
Serial No.: 10/755,086

Filed: January 9, 2004

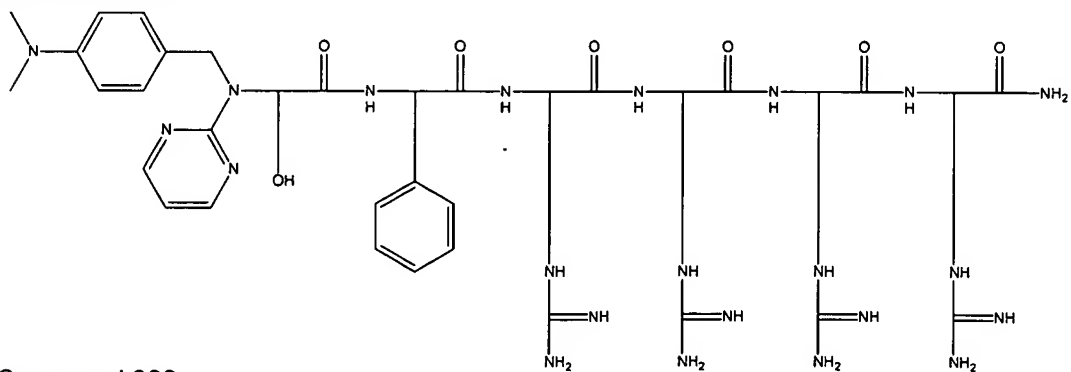
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Compound 397



Compound 398



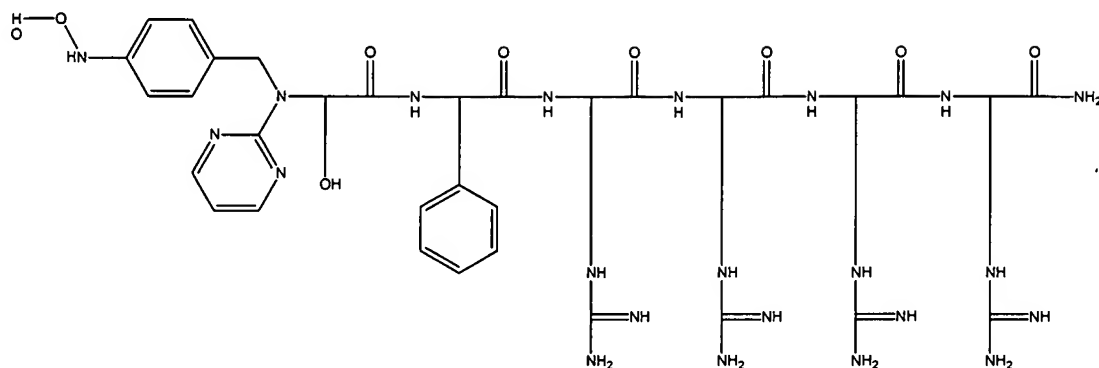
Compound 399

Applicant: David S. Lawrence

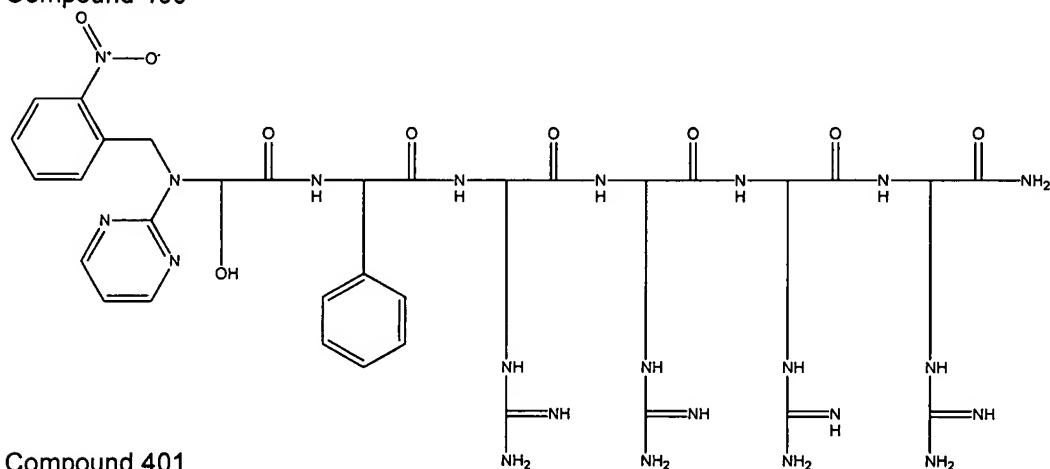
Serial No.: 10/755,086

Filed: January 9, 2004

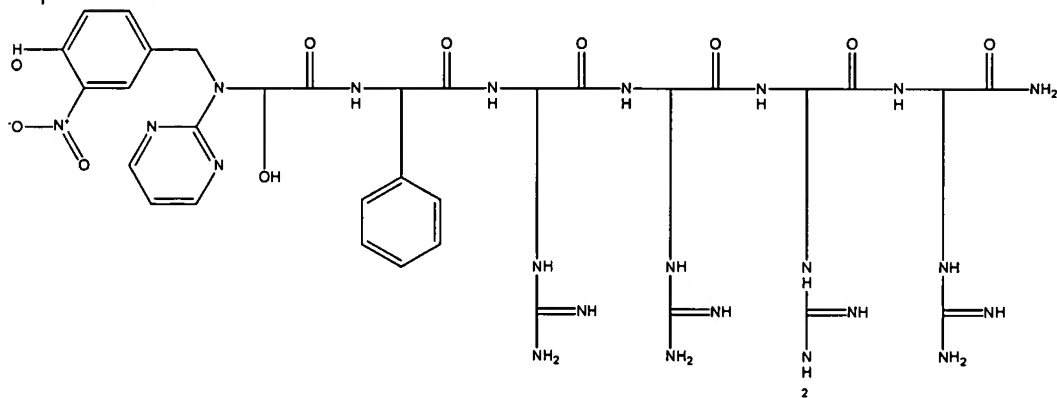
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Compound 400



Compound 401



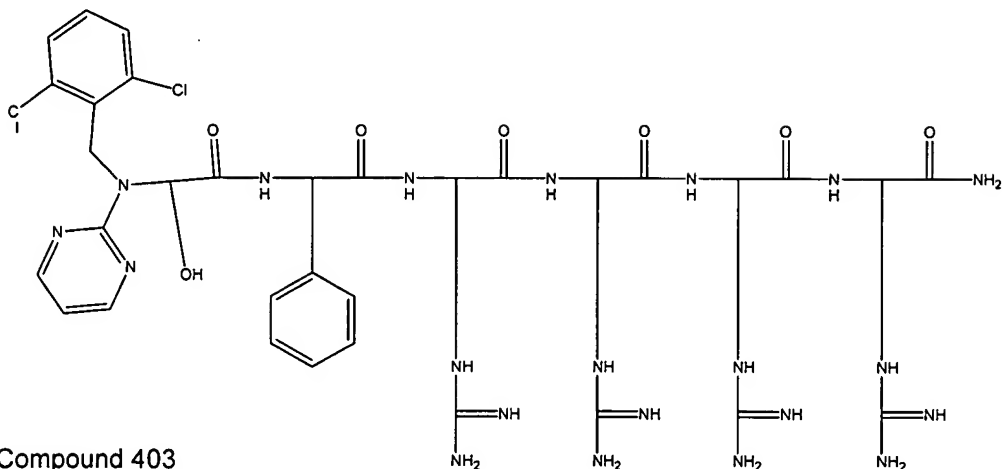
Compound 402

Applicant: David S. Lawrence

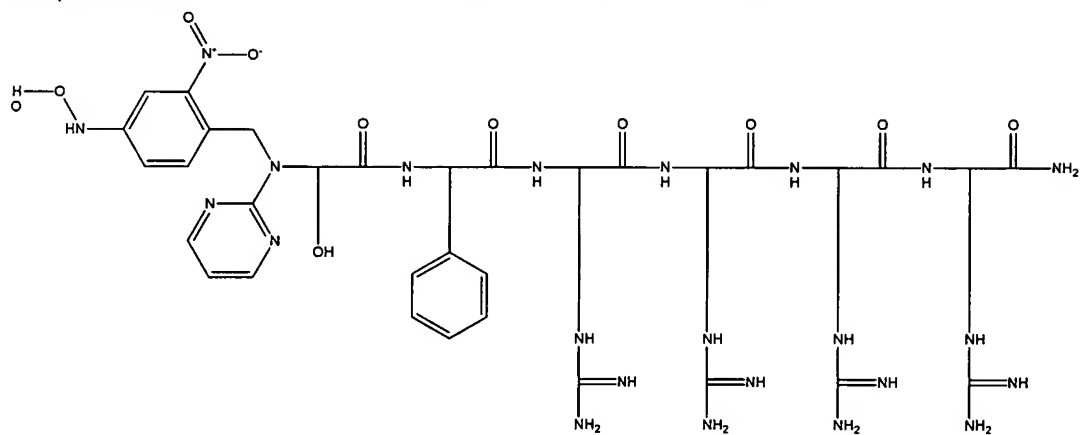
Serial No.: 10/755,086

Filed: January 9, 2004

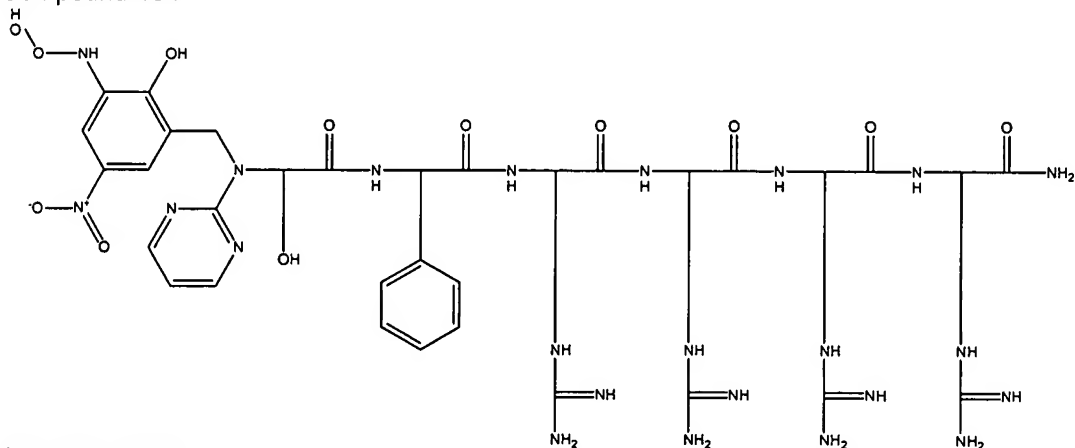
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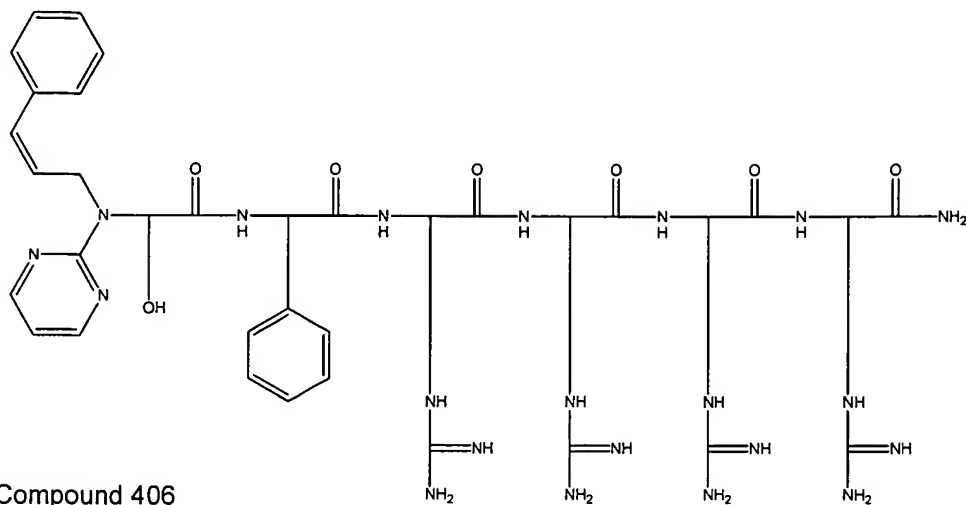
Compound 403



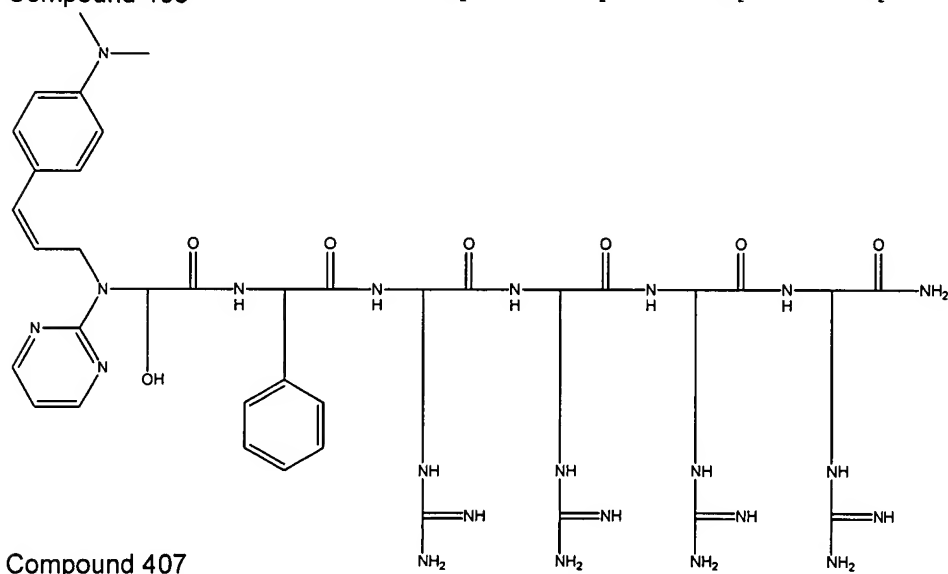
Compound 404



Compound 405



Compound 406



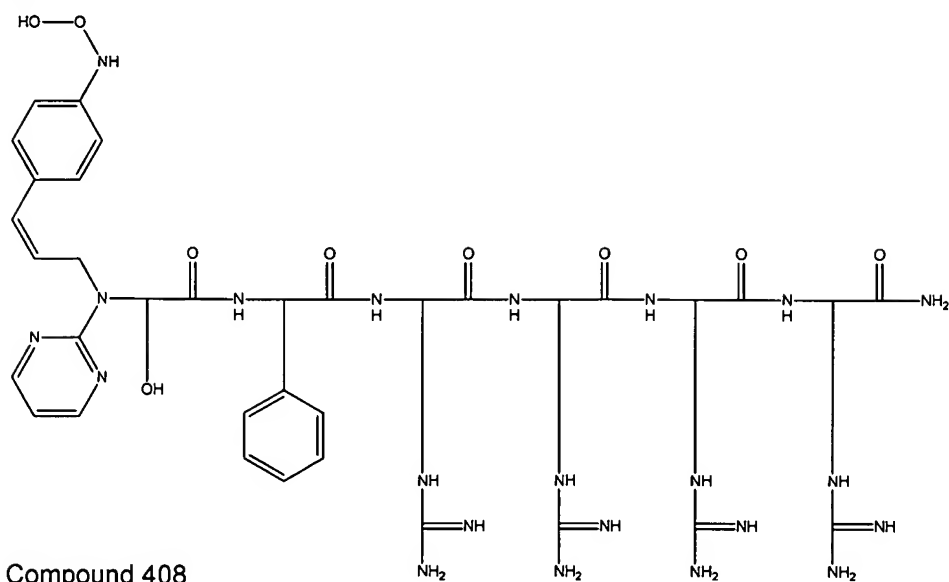
Compound 407

Applicant: David S. Lawrence

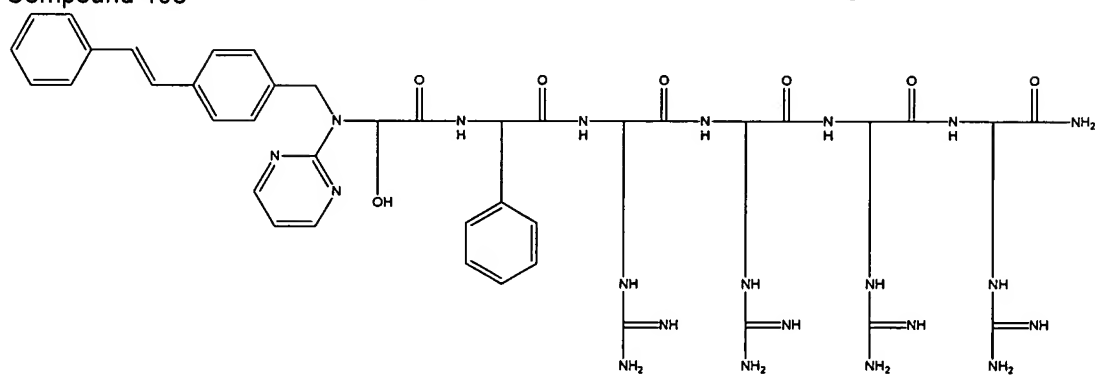
Serial No.: 10/755,086

Filed: January 9, 2004

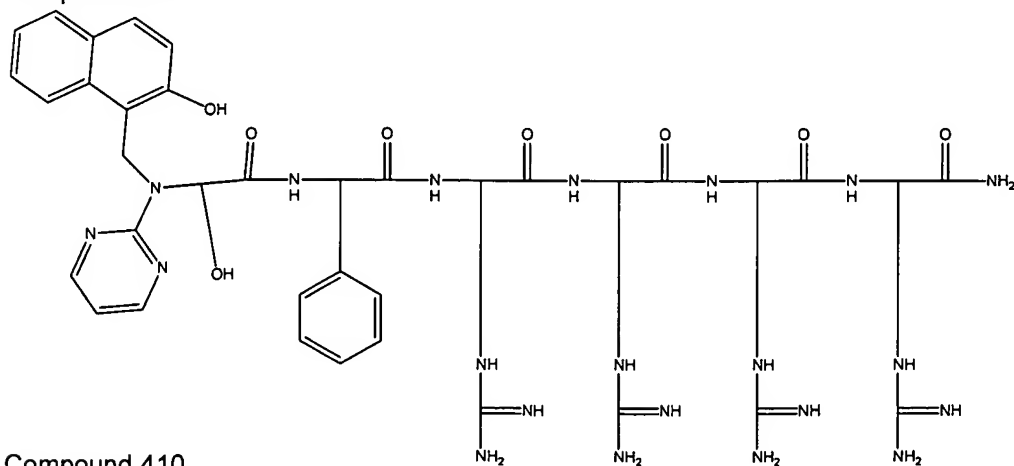
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Compound 408



Compound 409



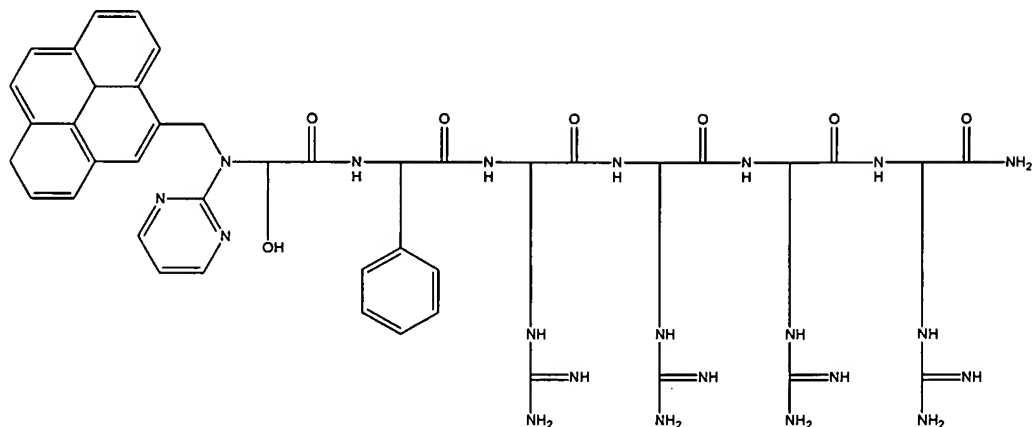
Compound 410

Applicant: David S. Lawrence

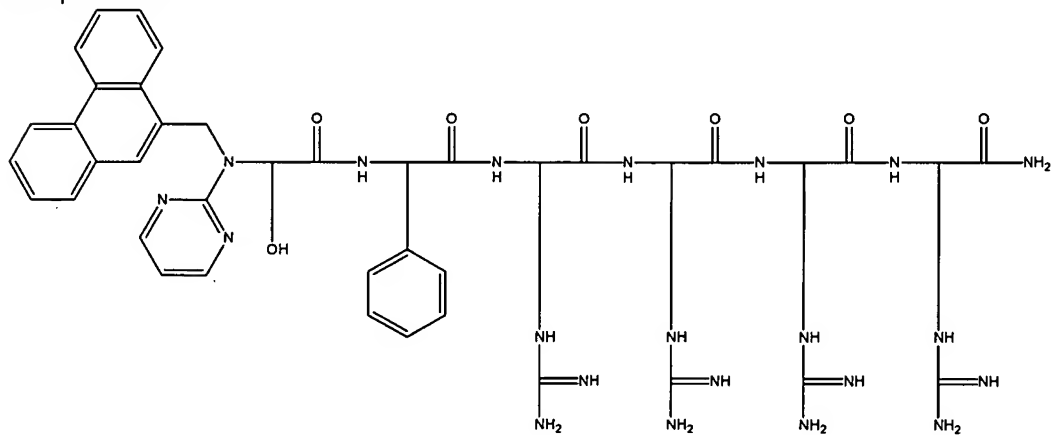
Serial No.: 10/755,086

Filed: January 9, 2004

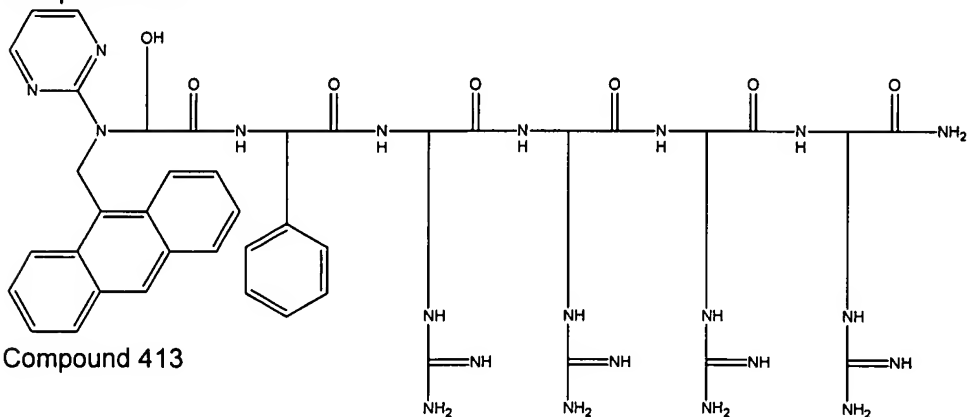
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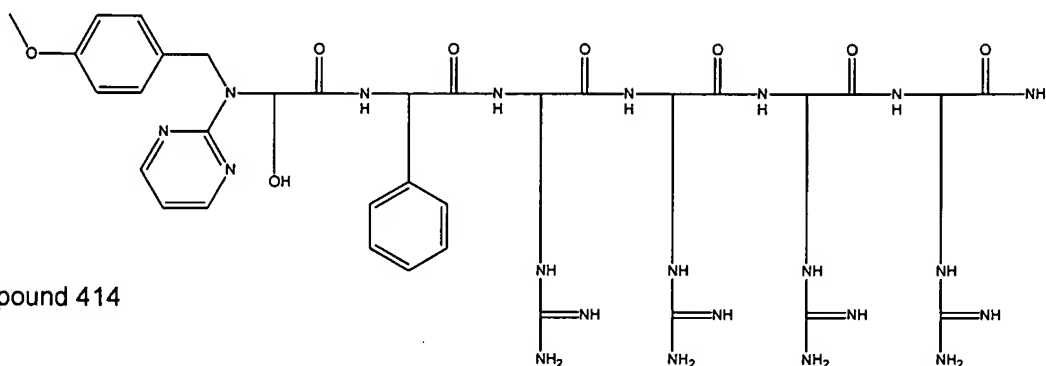
Compound 411



Compound 412

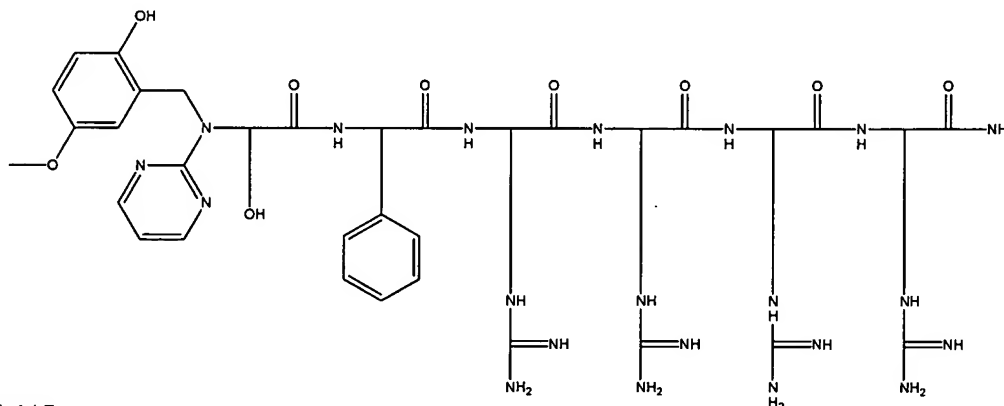


Compound 413



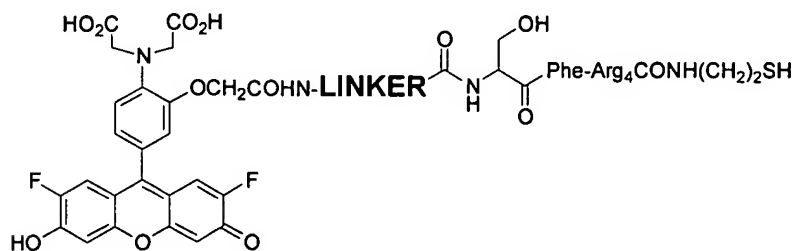
Compound 414

and

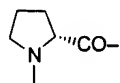


Compound 415

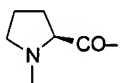
89. (Original) A chemical compound having the structure:



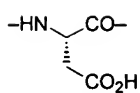
wherein the LINKER is selected from the group consisting of the following:



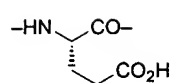
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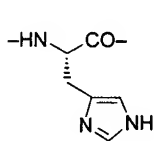
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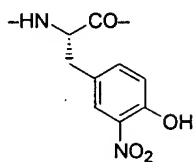
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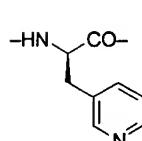
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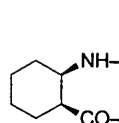
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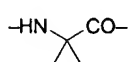
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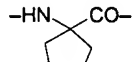
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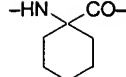
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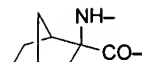
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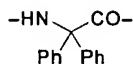
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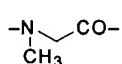
k



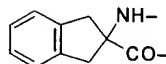
l



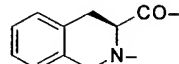
m



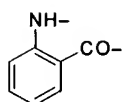
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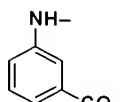
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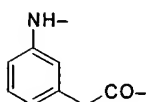
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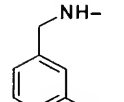
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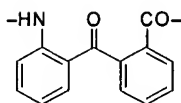
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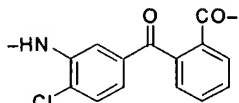
s



t



u



v

no linker

w

90. (Original) A chemical compound having the structure:

fluorophore-LINKER-X-FRRRRK-amide (SEQ ID NO:3);

wherein F is phenylalanine; K is lysine; R is arginine; and X is serine, threonine, or tyrosine.

91. (Original) The chemical compound of claim 90, wherein the fluorophore is a 7-nitrobenz-2-oxa-1,3-diazole derivative.

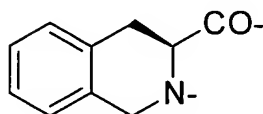
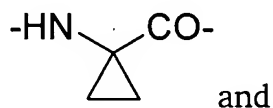
92. (Withdrawn) The chemical compound of claim 90, wherein the fluorophore is a fluorescein derivative.

93. (Withdrawn) The chemical compound of claim 90, wherein the fluorophore is selected from the group consisting of a dansyl derivative, an acridine derivative, an Alexa Fluor derivative, a BODIPY derivative, an Oregon Green derivative, a Rhodamine Green derivative, a Rhodamine Red-X derivative, a Texas Red derivative, a Cascade Blue derivative, a Cascade Yellow derivative, a Marina Blue derivative, a Pacific Blue derivative, an AMCA-X derivative, and a coumarin derivative.

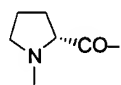
94. (Withdrawn) The chemical compound of claim 90, wherein the linker is a metal chelating linker.

95. (Original) The chemical compound of claim 90, wherein the linker is selected from the group consisting of a carboxamide linker, an aminobenzoic acid linker, a sulfonamide linker, a urea linker, a thiourea linker, an ester linker, a thioester linker, an alkylamine linker, an arylamine linker, an ether linker, and a thioether linker.

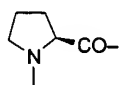
96. (Withdrawn) The chemical compound of claim 90, wherein the linker is selected from the group consisting of N-methyl glycine, L-proline, D-proline,



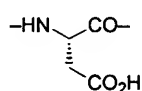
97. (Original) The chemical compound of claim 90, wherein the linker is selected from the group consisting of the following:



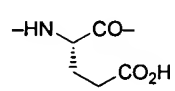
a



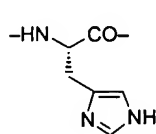
b



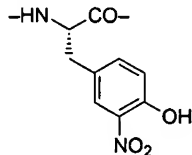
c



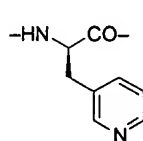
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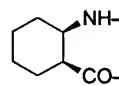
e



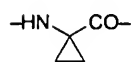
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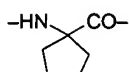
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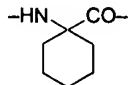
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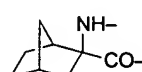
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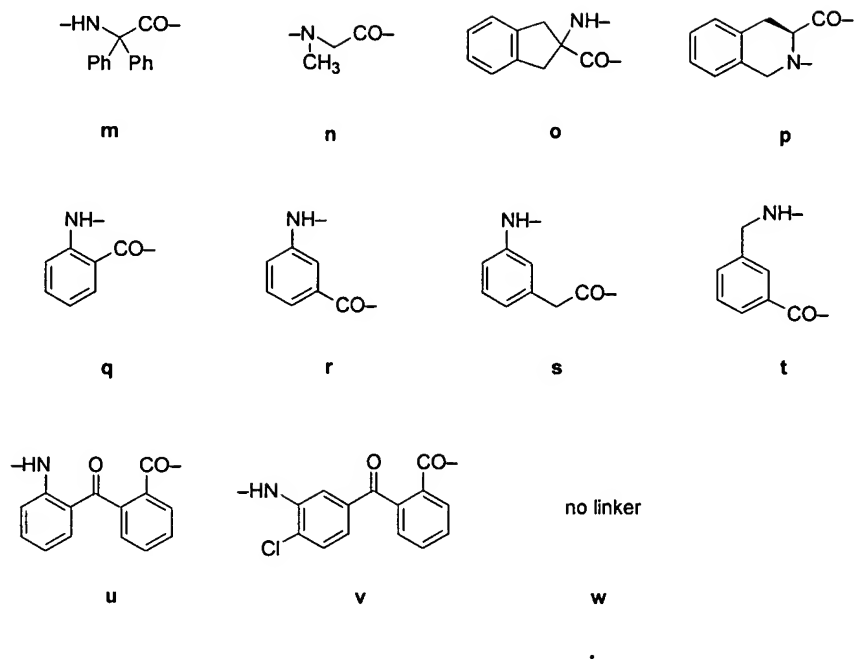
j



k



l



98. (Original) The chemical compound of claim 90, wherein the chemical compound is a substrate for a protein kinase.

99. (Original) The chemical compound of claim 98, wherein the chemical compound is specific for protein kinase C.

100. (Original) The chemical compound of claim 99, wherein the chemical compound is specific for isoforms α , β , and γ of protein kinase C.

101. (Withdrawn) The chemical compound of claim 98, the chemical compound is specific for protein kinase A, protein kinase B, protein kinase D, protein kinase G, Ca^{2+} /calmodulin-dependent protein kinase, mitogen-activated protein kinase, protein kinase mos, protein kinase raf, protein tyrosine kinase, tyrosine kinase abl, tyrosine kinase

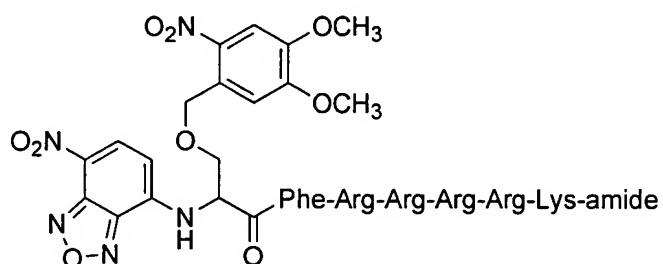
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src, tyrosine kinase yes, tyrosine kinase fps, tyrosine kinase met, cyclin-dependent protein kinase, or cdc2 kinase.

102. (Original) The chemical compound of claim 90, wherein the chemical compound further comprises a carbohydrate, a lipid or a nucleic acid.

103-121. (Canceled)

122. (Original) A chemical compound having the structure



123. (Previously presented) A composition comprising a chemical compound of claim 89, and a carrier.

124-126. (Canceled)

127. (Previously presented) The substrate of claim 60, wherein the substrate comprises a metal ion chelator.

128. (Original) The substrate of claim 127, wherein the metal ion is a magnesium ion or a calcium ion.

129. (Previously presented) The chemical compound of claim 90, wherein a metal ion chelator induces a change in fluorescence intensity.

130. (Original) The chemical compound of claim 129, wherein the metal ion is a magnesium ion or a calcium ion.

131. (Original) The chemical compound of claim 129, wherein the change in fluorescence intensity is at least a 20% change in fluorescence intensity.

132. (Canceled)

133. (Previously presented) The chemical compound of claim 90, wherein the linker comprises a turn to position the fluorophore in a location closer to the serine, the threonine or the tyrosine than the location the fluorophore would occupy in the absence of a turn in the linker.

134. (Previously presented) The chemical compound of claim 89, wherein the linker comprises a turn to position the fluorophore in a location closer to the terminal serine, the terminal threonine or the terminal tyrosine than the location the fluorophore would occupy in the absence of a turn in the linker.

135-136. (Canceled)

137. (Previously presented) The composition of claim 123, wherein the composition is a pharmaceutical composition and the carrier is a pharmaceutically

acceptable carrier.

138. (Previously presented) A composition comprising the substrate of claim 49, and a carrier.

139. (Previously presented) The composition of claim 138, wherein the composition is a pharmaceutical composition and the carrier is a pharmaceutically acceptable carrier.

140. (Previously presented) A composition comprising the compound of claim 88, and a carrier.

141. (Previously presented) The composition of claim 140, wherein the composition is a pharmaceutical composition and the carrier is a pharmaceutically acceptable carrier.

142. (Previously presented) A composition comprising the compound of claim 90, and a carrier.

143. (Previously presented) The composition of claim 142, wherein the composition is a pharmaceutical composition and the carrier is a pharmaceutically acceptable carrier.

144-145. (Canceled)

146. (Previously presented) A composition comprising the compound of claim

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122, and a carrier.

147. (Previously presented) The composition of claim 146, wherein the composition is a pharmaceutical composition and the carrier is a pharmaceutically acceptable carrier.

148. (New) The substrate of claim 56, wherein a photolabile side chain is attached to the serine, the threonine, or the tyrosine on the terminal end of the peptide, wherein the photolabile side chain blocks transfer of a phosphoryl group from adenosine triphosphate to a hydroxyl moiety of the serine, the threonine, or the tyrosine so that the substrate cannot be phosphorylated by a protein kinase until the photolabile side chain is removed from the substrate.